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DENVER.—VIEW OF THE CIVIC CENTER.—Drawn by Jules Guerin

The Background of the Concert Garden is Formed by the Colonnade, on the Columns of Which are to be Inscribed the Names of Civic Benefactors. The Central Motif is the Fountain to Typify the State, now Being Designed by Lorado Taft

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Shadows and Straws

THERE SEEMS TO BE A DIFFERENCE of opinion on the merits of the last exhibition of the Architectural League of New York. Perhaps an effort to analyze the differences may be of avail in throwing light upon a subject which is of constant interest and in which so many potentialities are thought to reside. There are those who accord the highest praise to the particular exhibition to which we refer, just as there are others who point out what they consider to be its glaring defects. The line of cleavage seems to be fairly clear and to be confined pretty closely to the question of the architectural value of an undertaking of this kind. Mr. Cortissoz, in the New York *Tribune*, deprecates the mixed character of the League exhibition and reaffirms his conviction of last year by challenging architects to an exposition of their work which shall be intimately architectural and not lost or hidden among the work of the painters, the sculptors, or the decorators.

While one may well hesitate to question the criticism of so competent an authority, grounds for taking issue in this particular instance might well be found in the avowed purpose of the League itself, which, as we understand its name to imply, is not wholly devoted to architecture but to the other contributing arts, the products of which in the League exhibition seemed, to Mr. Cortissoz, to obscure those of architects. Upon such a premise it ought to be possible to build a sound defense for the recent exhibition. Yet the vital question is not to be disposed of in that way, for it would not effectually answer the challenge to produce a real architectural exhibition.

ON FIRST THOUGHT it would seem just as reasonable to undertake an exhibition of newspapers as it would to assemble an exhibition of architecture. The world is so full of buildings of every conceivable kind that one might well ask why it was necessary to have an exhibition of architecture. If a man cannot be interested in the infinite variety of structures among which his daily life is cast, then how is he to be interested in the pictorial presentation of those and other buildings. The test of architecture is the building. It is not the drawing, nor the rendering, nor the photograph. To really study architecture, one must study buildings. To study it seriously, one must look behind the pleasing or displeasing façade and consider the purpose, the facility which the building offers for carrying out that purpose, and the plain facts of soundness, durability, and income-producing value.

This last factor is apt to be something of a shock to the academician, and yet that is the most insistent test to which modern architecture has to respond. It is idle to ignore it, futile to dismiss it. Study the architecture of the past as we may, enjoy it as we do, be inspired by it as we must, we cannot get away from the bald fact that the modern builder wants a fair return on his investment. We may except certain kinds of structures, where the return is of an indirect kind difficult to evaluate, but we shall still find ourselves confronted with the vast volume of building undertaken as a business investment. Is it not in this field that we find the incongruous jumble which makes the modern city so intolerably ugly? Ought an exhibition of architecture to exert a corrective

influence upon this kind of work? Is it for the purpose of informing that large majority of the public that an exhibition should be held, or ought it to be devoted to country-houses and the small class of buildings where the income is not measured in actual money?

POSSIBLY THAT IS THE QUESTION that must first be answered. We can all think of a kind of exhibition that would interest architects. They understand drawings and can read a plan. They can see through and beyond the rendering, the perspective, the elevation, and derive both benefit and pleasure from a study of the methods by which other architects have combined their structures to attain certain ends and yield certain effects of form and color. The technique of the art is at their finger-tips. Its alphabet runs through their minds without any effort at translation or decipherment. They are not tricked by methods of presentation which obscure defects of plan and proportion. An elevation can be measured and estimated by the experience which comes from long practice. Its flatness and lack of shadow can be informed with the imaginative eye of the trained mind. Palpable errors in plan stand forth with a clearness that no process of dressing up can hide.

But it is not so with the untrained. Not one man in a thousand can read a plan, or imagine what an elevation will look like when it is built; or detect the difference between a good building badly or indifferently presented and a bad building which has been dressed out with some blue sky and a landscape. Obviously there must be a distinction made between the kind of an exhibition one would offer as a means of impressing and informing the public and an exhibition which would merit the approval and the keen interest of architects.

They have an interest in the tools of the trade. Plans, elevations, sections, perspectives —these things which are merely the media through which the building is evolved—possess a power of attraction that is purely professional and technical. As a method of studying architecture it would seem that they are only related to the thing which really tells the story. It is the resultant building that stands as the architectural expression.

Be the architect ever so skilful a maker of pictures, the one test is the building. It always has been so; always will be so. The presentation of plans and elevations of projected work is not a study of architecture, but a study of the architectural method of building. The presentation of the plans and elevations of a building which has actually been built would seem to be a futile attempt to substitute the portrait for the living body. The one excuse is the opportunity for gathering together, pictorially, examples of architecture from widely distributed areas—of presenting a record of nation-wide or world-wide progress, such as could be viewed in no other way. That is certainly a legitimate purpose.

BUT IF THE STUDY OF ARCHITECTURE is the study of the building, then every attempt to study it by pictorial presentation is as much removed from the real study as the element of translation enters into the presentation. There is no way of drawing or painting or etching a building without having the result reflective of the artist's conception of the work. Such an exhibition would be interpretative, not accurately architectural, and would afford as many different presentations of a particular building as there were drawings. Such a result is inescapable and brings us face to face with the fact that it is not easy to say how to put together an architectural exhibition that shall be really interesting, and honestly instructive to those who daily move from their home to their work, from one city to another, from one land to another, and yet who find no interest whatever in the study of the buildings which meet their eye by thousands. We may possibly except those who travel to Europe, Baedeker in hand, and credit them with an effort to seriously understand the tale which has been written for their perusal, yet it is difficult to find solid ground for believing that such study is reflected in any mighty effort to apply the results to their own environment. We live among an ugliness which is appalling, if one can pause long enough to thoroughly take it all in. But we never do pause. It does not trouble us. We do not even see it. And so, perforce, we must seek to accomplish by an exhibition that which we cannot accomplish by the example before us, for of all the ever-present works of man, architecture may surely claim preëminence.

BUT THERE STILL REMAINS the photograph as a means of presenting architecture. The camera, it is said, does not lie. Ignoring the technique of the photographer, however, or dismissing it as a negligible quantity, we may assume that it would be quite possible to assemble any quantity of photographs truthfully to portray any quantity of buildings. It does not seem to be possible to come nearer than that to a study of architecture which shall be in no way interfered with by personal interpretations, whatever the medium. Models are without doubt the most fascinating and interesting form of presentation which it is possible to find. To the public at large they arouse all the interest possessed by any creation which can be understood by being seen. It is the irresistible appeal of the moving picture, of pantomime, of pageant and parade, possessed of the supplementary charm of the diminutive. Is it too much to believe that a well-arranged exhibition of forty or fifty models, or even less, would possess an infinitely greater public interest than a thousand photographs? We venture the question and make no assertion. We frankly confess that we have little faith in the photographs, and we are sure that such an exhibition would be of little technical interest.

It is possible, is it not, that the best exhibition would be one in which drawings, elevations, photographs and models were all presented in such a manner that the novice might trace the whole procedure and thus gain a very definite impression of how the architect pursues his studies and to what purpose he serves his clients. Perhaps the problem is to be solved only by going deeper into what, for want of a better word, we shall have to call the human equation in the relationship of architecture to modern life. Possibly it might be also well worth while to carefully inquire whether exhibitions are held primarily for the advancement of architecture or for the welfare of the profession. There is a wide difference, and each involves a different method of approach.

THE SUBJECT IS NOT TO BE DISCUSSED as an isolated factor, however, if one wishes to approach it intelligently. The exhibition, as an element in educational influence, is, at best, a substitute for a kind of education which shall eventually train our children to refuse to live in cities and towns which have been made over to other pursuits than those of the common welfare and the common enjoyment. When we have found out how to teach the horror of ugliness, we shall have learned something about how to interest people in architecture. But the Journal would welcome discussions on the subject of the exhibition.

THE NEW COMPETITION is what Mr. Sullivan W. Jones calls the open-price system of conducting business and about which he has written the interesting article in this number of the Journal. This system is not new, by any means, and yet in spite of the showing it has already made, it undoubtedly possesses all the elements of terror which are imagined into every effort to make the individual see that whatever benefits his particular industry also benefits him. In business, as in all other things, thought is ever arrayed against fear-of-change, that logical and understandable conservatism into which one mind has to make the breach through which others may follow. But fear of change in business is generally masked by indifference, inability to think clear through any problem, and the dread of submitting to the test of quality.

Perhaps, of the three, indifference is most to be blamed. Inability to think is the principal product of our educational system and the sufferers ought to be pitied. Dread of submitting to the test of quality is the natural corollary to business conducted primarily as a source of profit and incidentally, and far too infrequently, as a department of human service, yet it is to the test of service that business must finally submit. The mills of the gods grind slowly, but in their process of reducing all things to the greatest service of human life, they may grind business exceeding small—just as they will grind kings and emperors, religions and governments, trades and professions. The only way to survive is to be of service. Nothing can escape the final test.

To us that seems to be the hopeful thing about the open-price system. It is a step toward making business of greater service by eliminating fear and suspicion, and by encouraging confidence and integrity. We understand that other trades and businesses are studying the open-price system very carefully,

and we hope that architects will coöperate, in every way possible, toward its fair trial as a promising element of better building conditions.

IN KANSAS an architect was retained in connection with a public school building undertaking. His retention was challenged on the ground that it was a violation of the Kansas School Laws which prescribe that no contract involving more than Five Hundred Dollars shall be let without sealed proposals and to the lowest responsible bidder.

Attorney General Brewster of that state handed down an opinion which contains so admirable a recognition of the necessity of the architect as a safeguard of the public welfare and of his services as a precursor to any contract, that we reprint these paragraphs:

"The work of the architect may or may not be paid for out of money derived from an issue of bonds, but the professional work of an architect in draughting plans for the construction of such a building (school) necessarily must be done before the contract for the construction of the building can be let, and is of such professional and expert nature that it is impracticable to let that work at a competitive bidding."

We wish that every school board in the United States might have at least one member as intelligent as Attorney General Brewster of Kansas.

THE SECRETARY OF THE INSTITUTE has issued a circular letter to the Secretaries of all Chapters in which the following explanations of Institute and Chapter Membership are set forth:

Chapter Members, as of December eighth, 1916, retain their standing and will continue to be known as Chapter Members. They may be admitted into the Institute as provided in the By-Laws, but no new Chapter Members are henceforth permissible. Each Chapter has the right to create a class known as Associates of the Chapter, but those who enter that class must agree to make application for admission to the Institute within three years of their admission to Associateship with the Chapter, will have no vote upon Institute affairs during their Associateship, and failing to enter the Institute within the prescribed period, will automatically forfeit their affiliation with the Chapter.

Applications for such Associateship cannot be made until the Chapter creating such a class has amended its Constitution and By-Laws to conform with the mandate of the last Convention which abolished further Chapter Memberships, and provided that the Associate class might be established by any Chapter which so wished.

It is no longer necessary, however, for an intending applicant for Institute Membership to be affiliated with or belong to a Chapter. Application for admission to the Institute may be made direct to the Institute, in which case the application follows the prescribed routine. If elected, the new member is assigned to the Chapter in the territory of which he practises, or, upon request, to the Chapter in the territory of which he resides. From the foregoing it will be seen that the Chapters will ultimately be composed of Institute Members and Associates of the Chapter.

Institute Members will be transferred, in the future, from one Chapter to another as follows: The Member will obtain the usual credentials from the Secretary of the Chapter which he is leaving, forward them to the Secretary of the Institute, and receive therefrom an assignment to the new Chapter.

BEFORE WAR BECAME AN ACTUALITY, President Mauran had tendered the services of the Institute in an investigation of industrial preparedness, as reported in the Journal last month. The Secretary of War, in acknowledging his appreciation of the offer, stated that the matter had been referred to the Chief of Engineers of the War Department for action whenever and in what manner the Institute might best be utilized.

The Permanent Central Committee of the Institute has now been organized with Mr. Evarts Tracy, of New York City, as chairman, and on page 188 there will be found a detailed account of the methods to be pursued by the Committee in its work of organizing the architect resources of the country. There can be no doubt where the profession will be found in this emergency, and we hope that the Government will fully realize the especial character of technical service the profession is capable of contributing, quite aside from the eagerness with which individuals will respond.

The Remarkable Application of Town-Planning Principles to the War-Time Necessities of England*

By EWART G. CULPIN
Secretary of the International Garden Cities and Town Planning Association

ONE of the most serious, perhaps the most serious, social problem which confronts Great Britain at the present time, and which will be even more serious at the termination of the war, is the question of the great shortage in the supply of cottage dwellings. The universal British custom of a one-family dwelling for all classes of society has been well ministered to by all sorts of enterprises in the past, but for the last seven or eight years there has been an enormous falling off in the amount of cottages provided, so that at the present time it is estimated that no less than 400,000 cottages are required in England and Wales to make up the present shortage, which is increasing at the rate of 75,000 per annum.

A number of reasons are given for this shortage. Legislation which had as its object the securing of the "unearned increment" and the prevention of the holding up of building land has operated in an unexpected manner, and the old English idea of security in real estate has received a shock. The opening up of other and more remunerative channels for the employment of capital has had considerable effect, and another very important factor is the enormous increase in prices, which even before the war, had become so very marked owing to the activity of combines among building-trade merchants.

One of the principal agencies for cottage-building at the present time, and one which promises to become increasingly important as time goes on, is the garden-city movement toward housing on coöperative lines by societies of public utility. Already some eighty such societies are affiliated to the British Garden Cities and Town Planning Association, and between them they have built some eight thousand cottages and have a large acreage of land ready planned and with every arrangement made for going on with work at the earliest possible time. Every one of these estates has been laid out in accordance with the best ideals of modern town-planning and with due regard to the garden city standard of housing.

The number of houses is not large, considering the total, but it must be remembered that the activity resulting in the formation of the societies had its reward only in the two years preceding the war. In 1913, twenty-five garden suburb schemes were started on 1,500 acres of land for the housing of 90,000 people, and this work was in process of rapid expansion when the war came and, naturally, put an end to much building work. There has, however, been a large amount of building going on in those areas where increase of population made essential the provision of extra housing accommodation, and although in some places it was necessary to erect temporary wooden houses, there has been all over the country a keen desire to see that the accommodation provided was of such a character as to be a permanent asset to the housing resources of the country. Thus, even during this present year some thousands of cottage dwellings have been built.

The most remarkable of all is without doubt the Well Hall Estate, which was built by the Government for the accommodation of munition workers at Woolwich. Some sixteen hundred houses have been built there on virgin soil, and the result is a community which I can confidently say is, from the architectural standpoint, without equal in the whole world. Formerly I would have given the palm to Margaretenhohe, near Essen, while the Hampstead Garden Suburn ran that closely, but the Well Hall Estate is undoubtedly first. Design, material and workmanship are of the highest character; the variety in architecture and in finish prevents any semblance of monotony;

*With this article, the author posted a number of unusual photographs of housing, under government authority, for munitions workers, but the censor prevented their despatch. We shall publish them at the earliest possible moment.—EDITOR.

and already some charming street pictures can be obtained. Roughcast of various finishes, half-timber, red brick, and tiled fronts are carefully introduced into the scheme, while in some instances an overhanging upper floor gives fresh character to a street. The existing trees have all been preserved, and a number of corner plots have been left for ornamental gardens and shrubberies. The fatal objection to this scheme is that the community sense is lacking. There is no provision for a public hall, a place of worship, for play or amusement; there is no store, there is no school.

This is where the housing by societies of public utility shows such a great advance: the social side is ever present because it has been the reason for the work. In all those which are sufficiently advanced there are institutes, reading-rooms, and clubs of various sorts, and especial attention is given to the fostering of the spirit of neighborliness. The most important societies devote a certain percentage of their income to social work, and in others a premium is put upon what is termed "good neighborship" by means of additional facilities for the tenants. The estates of public utility societies will not have the same architectural pretensions as Well Hall because they will not have the money to spend upon it. The expense on the Well Hall Estate was colossal, so much so that there is a fear that the extravagance may deter others from copying the example.

Of the works being carried out under the Ministry of Munitions, one is not allowed at present to speak, but when the time comes for a record to be placed before the world of what has been done in this regard, it will be a revelation. Much could have been excused at such a time and under such conditions. One has only to read the accounts which have appeared in the British press from the pen of Sir Arthur Conan Doyle on the new munition towns that have sprung up, to realize that the whole of this has been done under town-planning conditions and with an eye to the future ordered development of these communities. That this has been the case is due to the recognition by the Government of the value of the improved housing work which has resulted from the activities of the garden city movement, and there is little doubt that the example of Letchworth and the other places which have followed in its train has convinced the world of the sanity of building in this manner.

In the press of November 28, for instance, Sir Arthur Conan Doyle gives a description of a town which he calls Moorside, nine miles long and a mile and a half wide, which twelve months ago was only a lonely peat-bog fringing the sea, and now has a population of some 25,000 inhabitants and a staff of 1,500 builders still engaged in extending the place.

Although names must not be mentioned, it is well to recognize that two of those who have been most employed upon this work of building in war-time are men whose names are most honored wherever garden cities and town-planning are talked about.

From the architectural standpoint the development of the English cottage is a matter of considerable interest. Everybody knows those long, long rows of continuous terraces of cottages and small villas, all of one type, repeated *ad nauseam* over all the outskirts of all our industrial towns. There is hardly a variation from a standard type, which comprises the narrow frontage with a deep setback, effectually screening light and air from what came to be the principal living-room of the house.

When the coming of the garden-city movement opened the way to a revival of domestic architecture and gave a new meaning to cottage building, there was such a violent swing of the pendulum that in the attempt to escape from the cramping hideousness which had disfigured our towns for the past two or three generations, all sorts of artistic extravagances were introduced into cottage-planning. Gables and oriel windows, leaded lights and long, sloping roofs, excellent in their places and things of beauty when carried out on a certain class of property, were specified for cottages whose occupants could pay only a few shillings in weekly rent. There was a sort of impression abroad that everybody who was to come and live in these cottages was a "fresh-air fiend," a student of Ruskin and Thoreau, and that if there were those who were not lovers of the simple life, they had "jolly well got to be." So we had the street-doors opening into the large, and often drafty, living-room, with the open stairs to the bedrooms going out at another corner, while very little provision was made elsewhere for cooking or for other domestic duties. The bed-

rooms were none of them square, and headroom was a minor consideration, so that getting into and out of bed became sometimes a matter of delicate strategy.

I am far from regretting that these things were done. They were probably necessary and were almost inevitable. If some of them were absurd and overdone, at any rate they directed many people's minds to considerations which had not previously been studied at all, and without doubt they woke in many people a latent appreciation of artistic construction. But it was overdone and it was expensive, as many cottage companies and owners have found to their cost when they have come to make alterations necessary to secure tenants after the first rush of popularity had subsided. After a dozen years of constant experiment, a type seems to be evolving which does more nearly meet the case.

In a recent visit to a number of these schemes I was impressed by the fact that the logic of circumstances has forced upon cottage architects the conclusion that the simple type of cottage is the one which must now be concentrated upon, and that the plain roof is superior for this purpose to the type which was formerly so much used—a type which was certainly more picturesque but which was more expensive, did not contain so much accommodation, and was not, by reason of the many breaks in the roof, so impervious to weather.

One does not want to see a whole colony of one-type cottages, with a simple front and a simple roof, any more than the present town street of one-type houses, but there are enormous possibilities even in dealing with one type when that one contains nothing which is architecturally objectionable, even though it may not include everything that we desire. In one new garden suburb of 600 to 800 houses there are only three types of cottage provided, and yet the colony has a charm of its own, simply on account of the skill with which the site-planning has been done. By varying the size of the blocks, by setting back here and there, forming squares and gardens, and securing by proper placing a "closed-in effect" for the streets with a decent block in the vista, this scheme has been given a distinctive character.

We have to face squarely the problem which is before us in the British Isles. Building has become, I fear, permanently dearer, and we must cut our coat according to our cloth, and as cottages must be provided, we who stand for an improved type of house with a proper environment and with social advantages, must find a type which will at once provide the accommodation which the speculating builder has provided in the past and also give us those improvements in internal accommodation and in design for which our movement stands.

For the moment, therefore, I pin my faith to the simple plain type and look to site-planning and grouping to provide the necessary variety. When things become normal again, then, perhaps, we can add some more ornament and have more freedom in design, but for the moment we must be content.

A Review of the Operation of the Registration Law in the State of New York

By D. EVERETT WAID

ONE may venture the assertion that the demand which has brought about the enactment of architects' registration laws in eleven states, with more soon to follow, is not primarily the wish to protect the public against unsafe buildings. It is safe to say that, on the other hand, the underlying motive is not a unionistic one to limit competition in business or to prevent cutting prices. The public, however, will believe, in spite of any protestations we may make, that we are making trades-union efforts. They may continue to believe that for some time to come, but eventually they will recognize the truth as we see it. That truth is that an architect, in order to do the work which belongs to his name, should have special ability and special training backed up by a broad general education; and the further sad fact is that, up to the present, anyone in New York State could assume the title of architect without let or hindrance, even if he were lacking in any one or all three of these qualifications—general education, special ability, and special training. Anyone with a flattered knowledge of drawing but without taste; anyone with a T-square and triangle, a little knowledge of carpenter work and none of the vital

elements of construction; anyone shrewd enough to hire a draughtsman but not to know a Corinthian capital from a Gothic vault;—any of these may (and all of them do) go to the public which builds usually only once and under false pretenses claim a commission to design a building. The client, imbued with thrift, knows that he has secured his building for one per cent instead of five or ten. He may never have the taste to realize that he has committed a crime against his neighbors, but when he completes his building is only confirmed in his belief that six per cent architects are robbers.

The function of the registration law, so far as the public is concerned, is to say, "If you want an architect, the man who may *use* that title is sure to know something about his business." The client who wishes to employ a builder or an engineer is free to do so on his own responsibility and without misapprehension as to what he is doing. Quite apart from our registration law, good building laws should fix the responsibility for safe construction upon the designer who is incompetent and jointly, also, upon the owner who employs him. Quite apart from our registration law we may look to future art commissions to protect the public against esthetic offenses. It is entirely futile to say that buildings shall be designed only by architects. But it is most important that the public eventually shall say that only well-designed and safely constructed buildings shall be permitted.

The time will come when the public will say that and say it effectively. But what our registration law says to architects is not what others say that engineers shall or shall not do, but what we ourselves must do. What we, as architects, say to ourselves is said through our own registration law, and that is that we, as architects, shall know something. Of the need for saying that we have only too much evidence.

The work of the Board of Examiners in administering the New York registration law had to do in its first year with 2,000 applications for certificates. Over 300 of those who applied were rejected as being unqualified to practise architecture. Some of these, it should be remarked in passing, are young men, promising, but as yet inexperienced, and no doubt they will reapply later and become able practitioners. Over 1,200 applications have been approved. Many of them, it must be admitted, are a sorry credit to the name of architect. Over and over again, as the Board reviewed evidence offered by a candidate—drawings badly done, elevations and construction badly designed, interiors badly planned, letters showing lack of scholarship and refinement, even to grossness and bad grammar—again and again did it realize why our profession does not occupy the high place in public estimation which it should hold. A mere recital of the functions of an architect would be a demonstration of the need of a broad education and a painstaking technical training. An architect's work puts him in a position of trust; to hold his clients' confidence he should have a mind capable of independent initiative and balanced judgment. His professional duty requires that he should be an administrator, a constructor and an artist.

Turning to the problems which have had to be met by the New York State Board of Registration of Architects, as it has been designated by the Regents (although named in the law the "Board of Examiners"), one may be interested first to ask about his own certificate. The parchments have been engraved from the design secured in competition, but none have as yet been issued, owing to the fact that some oversight in the State University left them without sufficient appropriation to pay for engrossing, and incidently for the time being without enough to pay the running expenses of the Board of Examiners. As soon, however, as a name is disapproved, the applicant is promptly returned his $25. If an applicant receives no notice at all it means that the Board is probably awaiting some drawings or a statement of his record which he forgot to send to Albany.

In interpreting the law the Board has tried to be as liberal as it properly could be and with due regard to actual rather than theoretical conditions.

The Board has had the assistance of a very full opinion on our registration law written by the Attorney General, which opinion seems very wise and broad in view. It has had the great advantage in the fact that the Department of Education also has had experience in administering the medical and other registration laws. With an able Assistant Commissioner of Education and an Attorney of the Department and clerical assistants, our avalanche of work has been handled with greater facility and less severe sacrifice on the part of the Board members than otherwise would have been the case.

One of the heaviest tasks of the Board has been the formulation of rules for its own procedure, and the writing of a syllabus of examinations which is designed to be a guide for study of architectural students. This book is likely to be delayed in publication until there can be secured certain amendments to the law which the Regents believe are required before they can administer the law properly. One of these amendments will fix the term of office of the five members of the Board at five years, one expiring each year. The President of the University, as well as the members of the Board, had assumed that the term of office could be fixed by the Regents. Another amendment will fix the standard of high-school education as that approved by the Regents. It is proposed also to correct some other slight verbal ambiguities in the law.

Since some amendments seem imperative we propose to ask for the following:

First, add another year to the exemption period during which architects who were in practice when the law was passed may apply for registration without examination

Second, permit registration upon a special examination for architects of ten years' experience and recognized standing from other states and from other countries.

Third, require that graduates of architectural schools shall not only have had three years' practical experience subsequent to graduation but shall give evidence of real knowledge of professional practice.

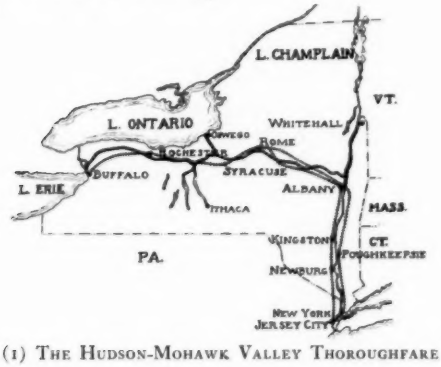
Fourth, provide that the registration law shall not be construed to restrict to architects the obtaining of building permits.

The members of the New York Board believe that registration laws rightly drawn and administered will have a powerful educational influence upon architects themselves, and that therein lies the primary importance of legislative regulation of the practice of architecture.

The National Importance of the Hudson-Mohawk Thoroughfare, and Objects in its Landscape

By WARREN H. MANNING

IN the national, state and town-planning movement of today, we must more fully recognize the far-reaching importance of such big continental features as the mountains that are barriers to easy surface traffic, and the plains, lakes, rivers, and their drainage basins, through which are traffic lines of least resistance. The two greatest continental thoroughfares, with New Orleans and New York as the gateways, are the Mississippi valleys, which cover over two fifths of the United States, and the Hudson-Mohawk valleys.



(1) THE HUDSON-MOHAWK VALLEY THOROUGHFARE

No city is more impressively big and busy than is New York, and few, if any, continental thoroughfares in all the world are more stately, beautiful, or serviceable than is the Ambrose Channel from the sea to the city, the tidal basin of the Hudson to Albany and Troy. From here through the Mohawk valley continue the railways and waterways to the Great Lakes with their steam lines and then to the Mississippi basin. Mr. A. B. Hepburn states that 73.5 per cent of the 9,113,614 (1910) New York state population is within two miles of the State Barge Canal along the 500-mile Hudson-Mohawk valley to Buffalo. (Illustration 1.)

It is estimated by well-informed persons that 4,125,000 passengers are carried up and down the Hudson Valley and to and from the sea through the New York gateway each year. This is the equivalent of 4⅛% of the population of the whole United States.

Needed—A Great Highway, Thoroughfare, and Reservation Plan in the Hudson and Mohawk Valleys.

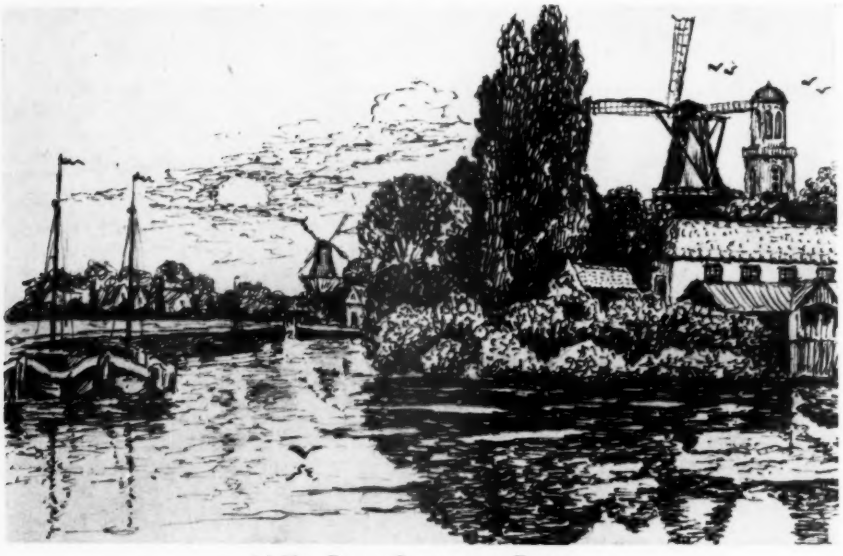
Notwithstanding the commanding importance of this thoroughfare to the state and the nation, there is no comprehensive state action or coördinated movement among all the towns along the line definitely to establish a great highway thoroughfare and reservation plan that will adequately and creditably meet future needs.

It is true that the splendid public spirit and generosity of a few wealthy men and women have secured a public reservation of about 22,000 acres with forty miles of river-front, including the Palisades, the only scenic unit of first magnitude in the valleys except Niagara Falls. These holdings are taken advantage of for recreation purposes by over a million people a year. Land has not been acquired, however, on the top of the bluff for a great thoroughfare from which an unobstructed view, for all time, would be gained over the Hudson Valley as it is now gained from the Morningside Park in New York. The Park road, as now located, partly near shore, partly back of villages, and at times upon the talus slope, is sure to be obstructed more and more as time goes on by villages, railroad terminals and industrial plants that will occupy every scrap of available Hudson River shore, as its waters are increasingly used by Barge Canal, and other low-cost river traffic, as railroad congestion increases.

Already, in many places and especially at Troy (17), the shore is fully occupied to the water's edge, an occupancy that is not of necessity unattractive, as one who has visited the Venetian (3) or Dutch (2) canals will know.

Commercial and Pleasure Highways—Aëroplane Landings.

The absence of wide and direct automobile highways along this great thoroughfare is obvious to one who examines the Government to-



(2) The Dutch Canals with Foliage

pographic sheets. Such thoroughfares, when possible, ought to follow each side of railway and canal rights-of-way to increase their width and allow slow-moving auto traffic to pass from station to station. Another passage should be along warehouses, shops, and factory delivery fronts. Between the two roads in the industrial centers would be the rapid passenger auto ways that would pass residential frontage beyond the industrial centers. There should also be opportunities provided for a separation of grade as conditions require it. There also must soon be aëroplane landings on flat, smooth land not less than 1,000 by 1,000 feet square and preferably 1,600 by 2,000, which is about eighty acres, as stated in a recent address by Mr. Orville Wright. From such a main trunk line with its aëroplane-landing junctions, the branch roads would lead. It is by such wise planning that New York will maintain its commercial supremacy and do its part in preparedness for the intense international industrial competition of the future.

The importance of such a project is emphasized by the great valley population along the Barge Canal towns, and by Mr. Albert M. Turner's Connecticut state study in which he finds that in a century 84 upland towns have decreased 10.7 per cent while 84 lowland towns have increased 89.3 per cent.

Industry Now the Dominant Influence in a Highway Plan.

To us, who have to do in a large way with the design of landscapes and of structures in landscapes, this movement has much historic and practical significance. It leads from feudal days, when the hilltop watch-towers and castles gave wide outlook to detect enemies and protect retainers whose homes and little home industries crowded about the base of the castle. (9) It leads from monastic days, when a cult with its terror of saving and cursing souls gave vast resources to religious leaders with which to build dominating cathedrals in the crowded villages of their followers. (27) It takes us back to the forefathers who broke away from religious tyranny but still retained the dominance of the high-spired church in our colonial villages and the hilltop location for protection against enemies. (16) Then came the dominant evidence of civil as against ecclesiastical authority in the design and hilltop location of state capitols; but now, the spires and the capitols are being obscured by much higher and bigger business and industrial structures. (8–11.)

Through Traffic Lines in the Valleys.

Now, great industrial establishments are dominating not the hilltop but the valleys where through traffic lines are, and where employees'

(3) The Venetian Canals without Foliage

homes crowd about the factories and up nearby hillsides to overlook the factories. (10)

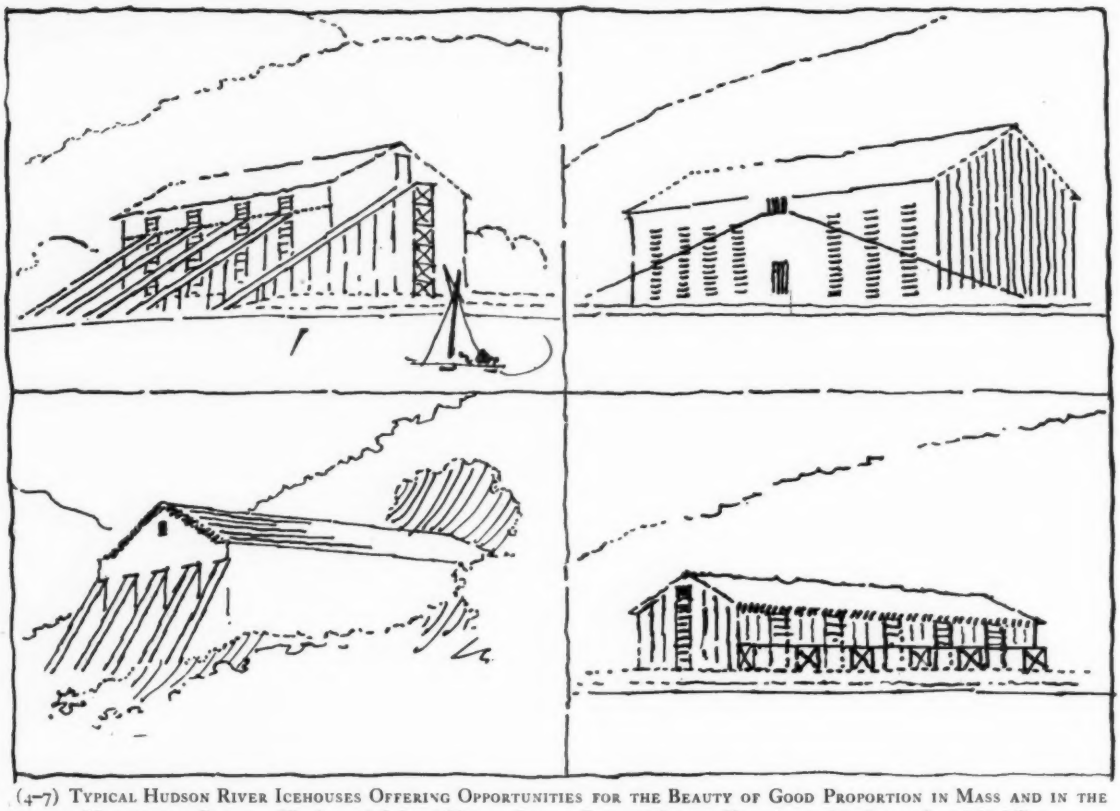
Let us here consider these industrial plants. They have been constantly migrating with changes in economic conditions. For example, when New England's best timber was exhausted, furniture factories went to Michigan. Now that the limits of natural resources are better known, industries will tend to become permanently established at the place where raw and finished products can be most economically assembled and distributed. Distinct types of industrial structures will be developed in each locality, with homes to meet the needs of both the highly paid finished-product workers of one locality and the low-paid labor that is harvesting raw products in another.

A Study of Architectural Accents in the Proposed Route between Albany and New York.

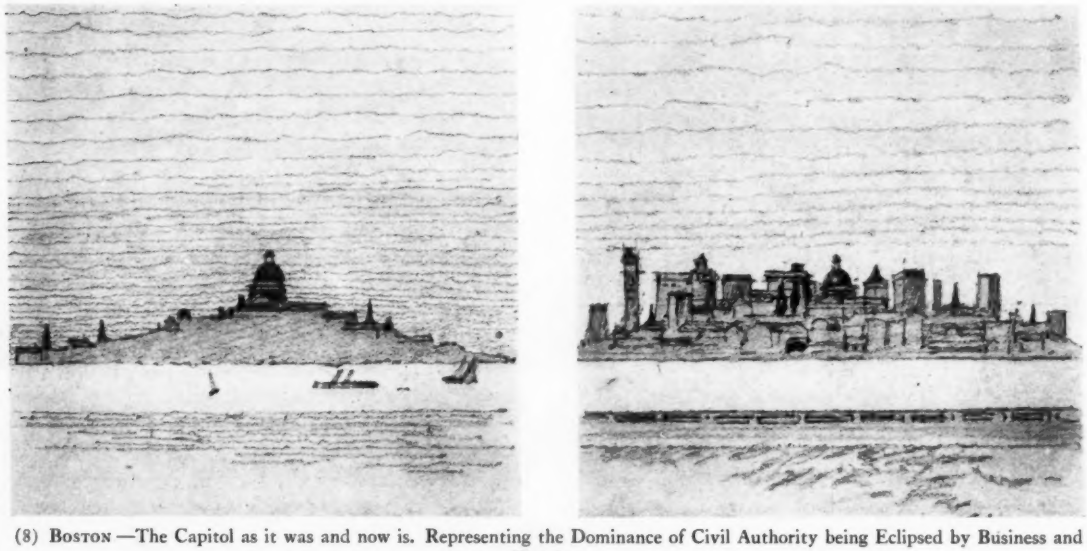
How dominant industrial plants are is made evident to one who studies landscape between Albany and New York from the New York Central trains. Ice-houses, for example, present a surprising variation in construction detail. While some are not attractive, it is obvious that they may have distinction, dignity, and beauty. One at Hudson, with red-latticed runways and framework outlined against a whitewashed wall and reflected in the water below, is certainly attractive. Another, on a river island, was covered on four sides with a raw-colored advertising sign that is an insult to the public, a discredit to the owners of the buildings and to the producer of the advertised product. These are excellent examples of the good and evil opportunities offered by this class of structures. (4–7, 12–15) Close to the railroad is a big concrete storage building with big, simple, flying buttresses. (6) It has distinction and impressiveness.

Opposite Greendale a large cement plant merges unobtrusively into the landscape with its gray cement-colored surfaces. Above Poughkeepsie is a great bare rectangular public institution, shot full of little window-holes and surmounted by a miniature all-out-of-scale belfry. Presumably this was the work of an architect, but it is as unattractive as any ice-house. (15) Near this point, and at Kingston, are brickyard structures many hundred feet long with a low-lying broad roof-line and long dark shadows under the eaves. These are dominant and not unattractive features, especially when separated into balanced units by a higher structure. (29–32.) At one point a gray terraced clay-pit with sharp edges and steam-shoveled channeled faces was not unattractive as seen from across the river.

These brick-sheds show how a plain structure can be attractive, as does the work of Mission



(4–7) Typical Hudson River Icehouses Offering Opportunities for the Beauty of Good Proportion in Mass and in the Utilitarian Detail. The lower left-hand Picture shows a Concrete Storage House, revealing Strength and Stability



(8) Boston —The Capitol as it was and now is. Representing the Dominance of Civil Authority being Eclipsed by Business and Housing

(9) An Ancient Castle and Retainers' Village. Representing the Dominance and Protection of Feudal Days

(10) The Dominance of the Factories in the Valley with Homes on the Hillside Above

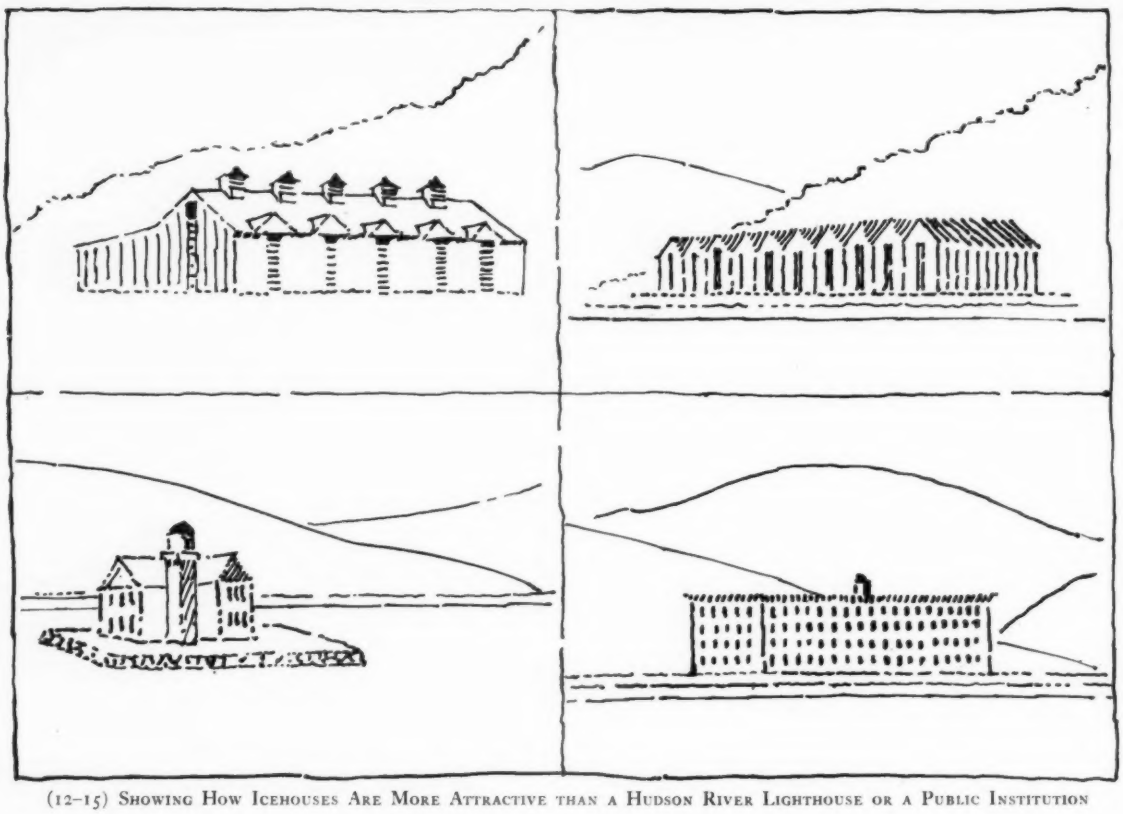
builders (25) of the Pennsylvania Dutch at Ephrata (26), and of the English soldiers at Mackinaw Island (33).

From Newburg North.

At Newburg, near the shore, the dominant structure is a clumsy many-storied yellow factory. (22) Above this the town spreads over the landscape like a blot of reddish gray ink on the brownish winter hillside, with only a few little spires to relieve monotony. Near Kingston other brickyards form the foreground for an attractive high-porticoed old house (31) with high lights on, and deep shadows between the columns. This type of buildings counts among the best in a distant landscape. On either side of this are reddish clay-pits, broken down and untidy, that ought to be planted. Near this town a charming little island is disfigured by the billboards of one Smith's product. He ought to be ashamed of himself for thus insulting the public. Again, where High and Kings bridges span the valley, a billboard monstrosity shuts out the most effective bridge view completely, just as one is beginning to enjoy it.

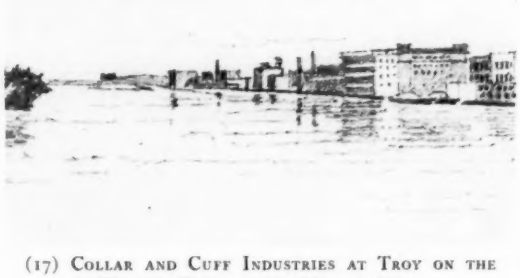
Of educational buildings, West Point forms a splendidly effective pile as it steps up the steep hillside from the water's edge in a well-studied grouping of its parts. There is a fat trail of red brick dwellings trailing along the face of the

(11) The Dominance of Distinctive Buildings Lost in the Jumble of Big Things in New York

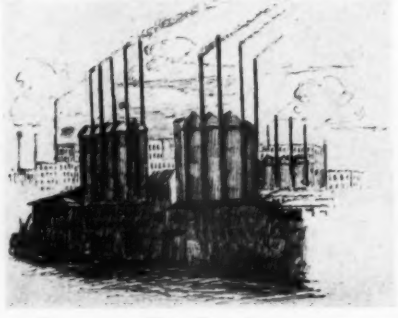


(12–15) Showing How Icehouses Are More Attractive than a Hudson River Lighthouse or a Public Institution

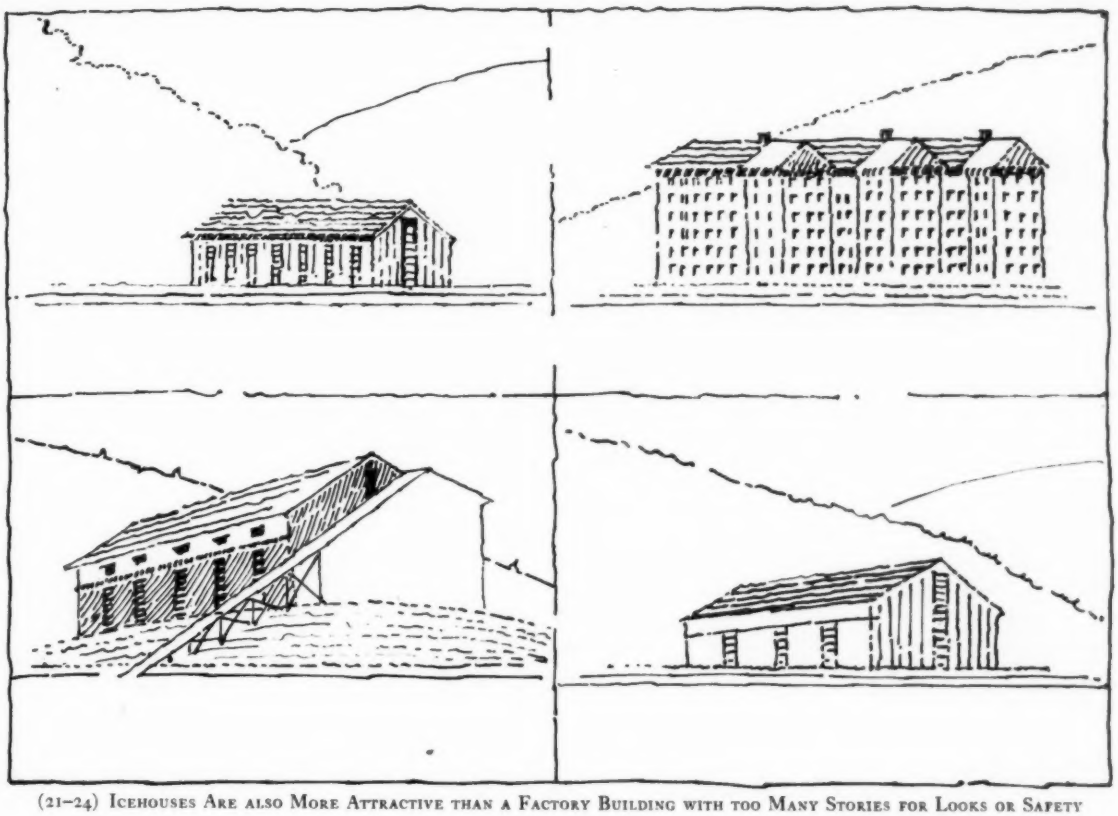
(16) Church Spire in a New England Village—A Recognition of Church Authority



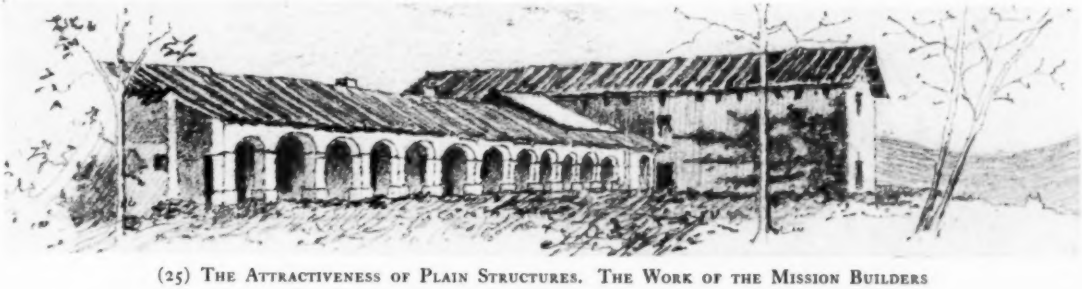
(17) Collar and Cuff Industries at Troy on the Water's Edge of the Hudson River



(18–20) Coal-Mining and Blast-Furnace Structures Will Give Individuality to the Industrial Towns of the Future

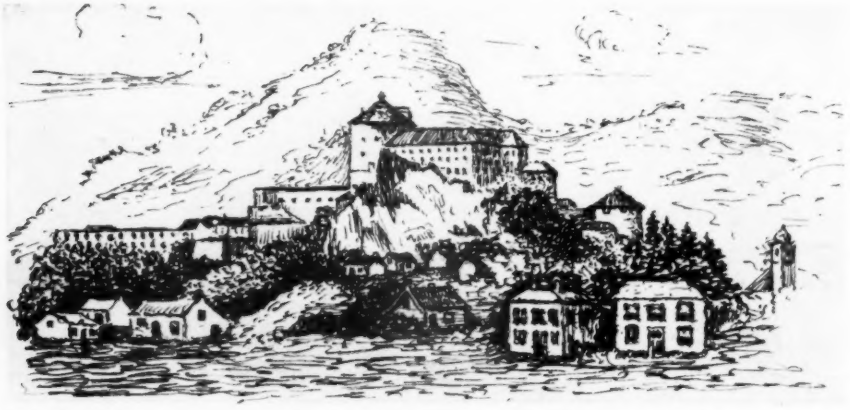


(21–24) Icehouses Are also More Attractive than a Factory Building with too Many Stories for Looks or Safety



(25) The Attractiveness of Plain Structures. The Work of the Mission Builders

(26) The Attractiveness of Plain Structures. The Work of the Pennsylvania Dutch at Ephrata



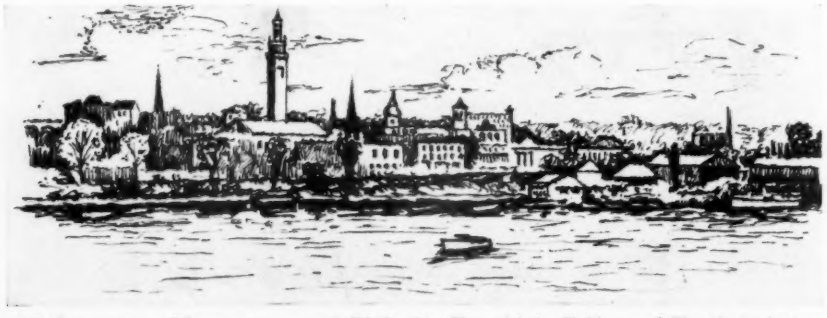
(27) The Monastery and its Village. Representing the Dominance of Ecclesiastical Days

bluff to the south that would have merged better in the group if built of the stone of the main buildings. Quite as effective, in a lesser degree, are the ranks upon ranks of brick buildings near Hastings in which yeast-cakes are made. A most conspicuous structure in which architectural detail has run riot is a private island castle with embrasures, battlements, bastions, and a display of artillery antiques. Standing in the river at intervals are lighthouses that might have been most attractive architectural beacons (14) but are not.

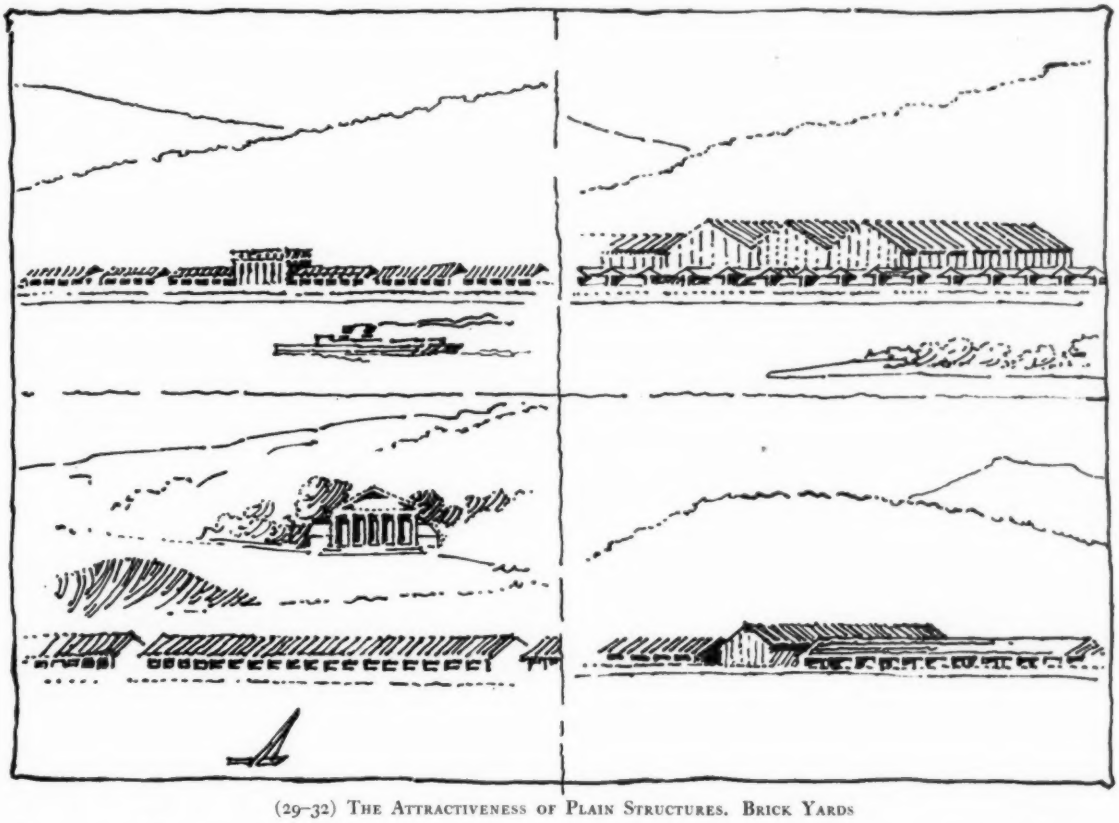
How special industries develop a distinctive and attractive structure in which architects have taken no part, but that convey a lesson to all who have to do with design in landscape, is made evident by the Scranton & Wilkes-Barre coal-mining and assorting structure and the Birmingham, Alabama, blast furnaces (18–20).

An Object Lesson—A Suggested Program of Action.

It is such incidents that make one feel that it would be really worth while for a group of those who have to do with the development and delineation of landscape to take two "days off" on a steamer from New York to Albany and back for the purposes of sketching existing river-side conditions and practicable improvements that could be easily made, and offering them as suggestions to be acted upon by industries, towns, and individuals. These suggestions could be offered through the local press or otherwise. This work would be a contribution to the educational movement that is leading a constantly increasing number of people to gradually, but surely, develop thought, sentiment, conviction, and then readiness to work for more adequate and beautiful thoroughfares for traffic and pleasure, for reservations to preserve landscape

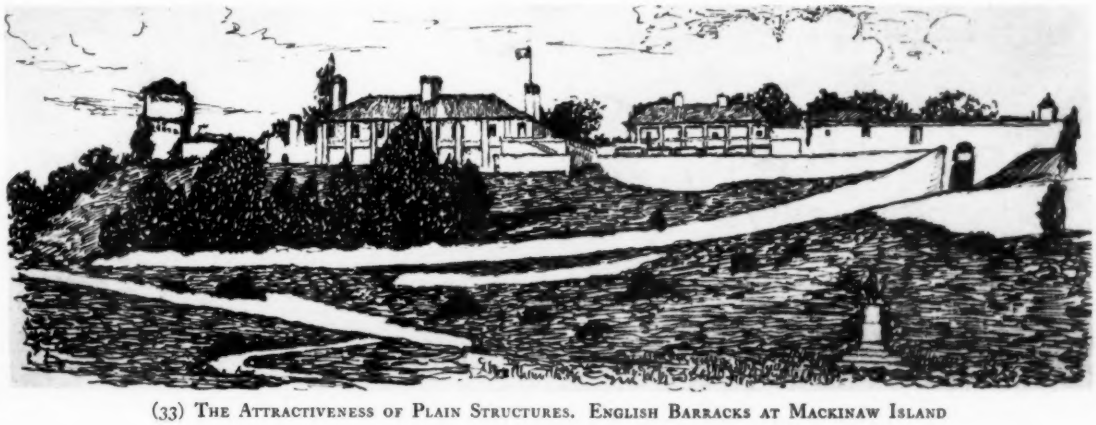


(28) Springfield, Massachusetts.—A Distinctive City with its Evidence of Church Authority over-topped by the Evidence of Civic Authority



(29–32) The Attractiveness of Plain Structures. Brick Yards

beauty, and for more beautiful towns and structures to house all kinds of human activities. It is not to be expected that suggested improvements can be brought about quickly through legal authority alone, especially when this authority is arrogantly and ignorantly enforced, as it often is. Permanent good results must come through the more persuasive and insistent demands of educated popular opinion, and every professional man owes a duty to himself and to the public to give some time and aid to this great work.



(33) The Attractiveness of Plain Structures. English Barracks at Mackinaw Island

Beaux-Arts Institute of Design

Official Notification of Awards—Judgments, February 13, 1917 and February 27, 1917

Class "A," Third Projet

Jury of Award.—F. A. Godley, W. Emerson, G. A. Licht, F. C. Hirons, E. V. Meeks, H. W. Corbett, S. Codman, H. Sternfeld, F. H. Bosworth, Jr., E. I. Williams, H. L. Shay, H. Sedgwick, J. Wynkoop.

Program.—A Country Home. *Drawings submitted, 89.*

Awards.—First Medals, A. C. Robinson, III, S. Matthews, J. Hudnut, Columbia University; E. A. Lehti, Atelier Hirons, New York City; D. R. Wilkinson, Los Angeles Architectural Club; L. C. Licht, L. Suckert, R. W. Blaine, University of Pennsylvania.

Second Medals, W. H. Jones, F. W. Bail, D. F. Innes, D. B. Ferris, A. Burton, M. M. Konarski, Columbia University; L. V. Lacy, W. W. Horner, Cornell University; W. G. Sprague, A. F. Skogse, M. C. Beebe, Atelier Hirons, New York City; A. H. Christman, University of Pennsylvania; A. C. Webb, Atelier Wynkoop, New York City.

Class "A," Third Esquisse-Esquisse
Class "B," Third Esquisse-Esquisse

Jury of Award.—M. S. Wyath, F. H. Haskell, Mr. Everett, F. T. Chamberlain, P. Schultz, G. H. Bickley; also served as Jury of Award for Class "A" and "B" Archæology, Third Projets and Measured Drawings.

Program.—Class "A," A Jeweler's Store-Front. *Drawings, 62.*

Class "B," A Clock Tower. *Drawings, 60.*

Awards.—Class "A," Third Medals, L. C. Licht, University of Pennsylvania.

Mentions, J. Hudnut, J. L. Newman, F. H. Buell, Columbia University; R. H. McNaughton, Cornell University; E. R. Froese, Atelier St. Louis; L. Suckert, P. J. Weber, University of Pennsylvania.

Class "B," First Mentions, P. A. Tischler, Columbia University; D. W. Orr, Yale University.

Mentions, J. P. Morgan, Carnegie Institute of Technology; C. A. Albrizio, Atelier Hirons, New York City; A. G. Alexander, Atelier Licht, New York City; G. Chittenden, R. A. Lockwood, Los Angeles Architectural Club; F. M. Hodgdon, Atelier Rebori, Chicago; T. Steinmeyer, St. Louis Architectural Club; M. Boulicault, Atelier St. Louis; W. T. Conboye, George Washington University, Washington, D. C.; J. F. Cook, Atelier Wynkoop, New York City.

Class "A" and "B" Archæology, Third Projet

Program.—A Patio. *Drawings submitted, 18.*

Awards.—Third Medals, W. F. Diehl, Carnegie Institute of Technology; J. Hudnut, Columbia University; P. J. Weber, G. M. D. Lewis, University of Pennsylvania.

Two Measured Drawings were submitted in this competition on which the following award was made: Third Medal, C. H. Sorber, Carnegie Institute of Technology.

Official Notification of Awards—Judgment of February 27, 1917

Class "B," Third Analytique

Jury of Award.—F. A. Godley, W. Emerson, P. A. Cusachs, H. P. Pennington, L. Warren, J. F. Harbeson, A. Ware.

Program.—A Doorway. *Drawings submitted, 117.*

Awards.—First Mention Placed, D. Reinhardsen, Columbia University; R. Golden, Atelier Hirons, New York City; G. H. Levy, 527 Fifth Avenue, New York City; G. K. Trautwein, T-Square Club, Philadelphia.

First Mentions, I. S. Stark, A. A. Klingensmith, Carnegie Institute of Technology; H. Strazzabosco, Atelier Hirons, New York City; B. Sutter, Atelier Puckey, Chicago Architectural Club.

Class "B," Third Projet

Jury of Award.—F. H. Bosworth, Jr., H. W. Corbett, F. C. Hirons, H. Sedgwick, W. L. Bottomley, M. S. Wyath, H. Hornbostel, Prof. Burnham.

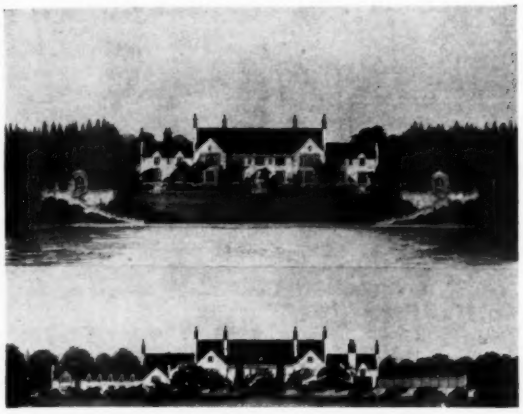
Program.—A Battalion Armory. *Drawings submitted, 122.*

Awards.—First Mention Placed, E. S. Lacosta, Atelier Corbett, New York City; F. I. McCathern, F. W. Knecht, Jr., Atelier Hirons, New York City.

First Mentions, H. G. Marceau, D. Holstein, Columbia University; R. P. Raseman, S. P. Thompson, Cornell University; D. A. Hamilton, Carnegie Institute of Technology; W. C. Skinner, Jr., Detroit Architectural Atelier; W. H. Bond, Jr., Atelier Hirons, New York City; A. G. Alexander, Atelier Licht, New York City; F. A. Elsasser, Atelier Wynkoop, New York City.

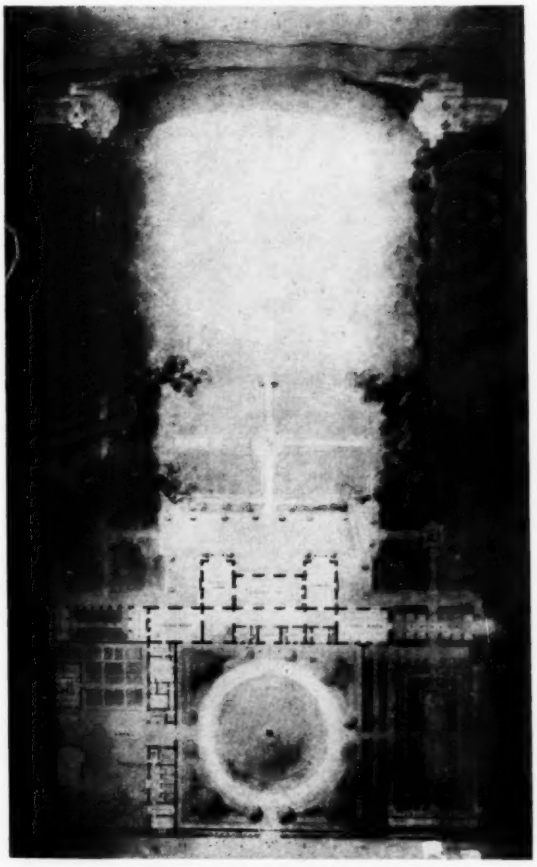
War-Time Help for the Students of the Ecole des Beaux Arts

Under the Honorary Presidency of Mr. Whitney Warren, there has been formed, by a number of American students at the school, a committee for assisting the members and graduates of the school now with the French colors, as well as their families at home. The work has been carefully organized, and contributions are asked in order that the assistance may be enlarged to cope with the growing needs. Contributions may be sent to Mr. Henry R. Sedgwick, Treasurer, 107 East Thirty-seventh Street, New York City.

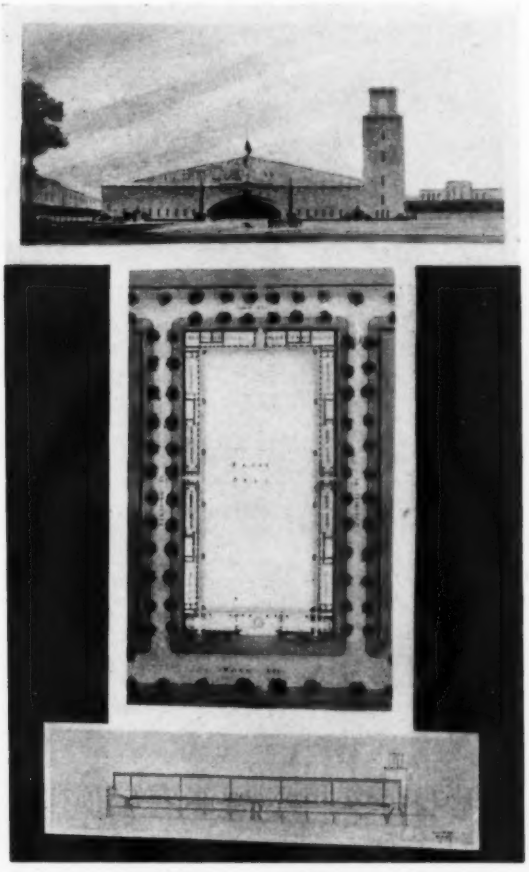


CLASS A.—III PROJET.—A COUNTRY HOME
First Medal, L. E. Licht

CLASS A.—III ESQUISSE-ESQUISSE.—A JEWELER'S STORE FRONT
Third Medal, L. E. Licht



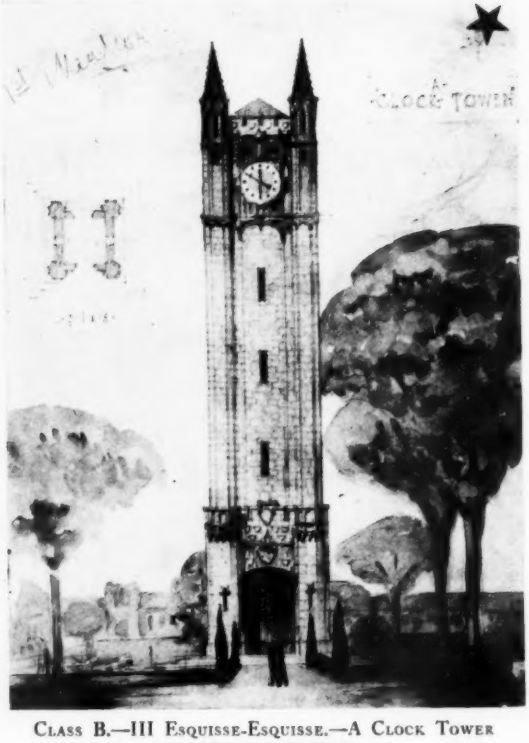
CLASS A.—III PROJET.—A COUNTRY HOME
First Medal, L. E. Licht



CLASS B.—III PROJET.—A BATTALION ARMORY
First Mention Placed, F. I. McCathern

CLASS A AND B.—ARCHÆOLOGY.—III PROJET—A PATIO
Third Medal, P. J. Weber

CLASS B.—III ANALYTIQUE.—A DOORWAY
First Mention Placed, G. H. Levy



CLASS B.—III ESQUISSE-ESQUISSE.—A CLOCK TOWER
First Mention, D. W. Orr

Town-Planning and Housing

GEORGE B. FORD, Associate Editor

A Residence Park on the Site of the Panama-Pacific Exposition

By MARK DANIELS

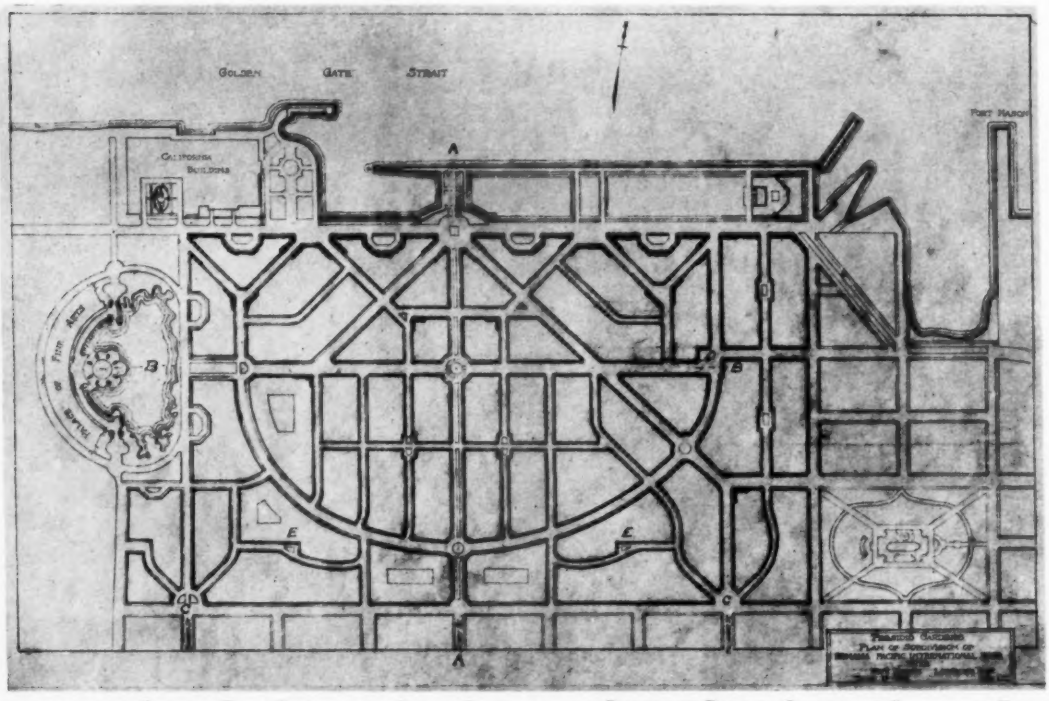
Architectural Renderings by C. K. Bonestell, Jr.

The Plaza Indicated at D on the General Plan (p. 174).—From a Point South of the Plaza, Looking North. From a Water Color Sketch by C. K. Bonestell, Jr.

IF there were ever any doubts in the minds of laymen concerning the value of city-planning, the controversy over the purposes to which the area recently occupied by the Panama-Pacific International Exposition should be put ought to cause them to be laid aside forever. For the past ten years the residents and others interested in the northern sections of San Francisco have been arguing and pulling this way and that, first to make this site, formerly known as Harbor View, into a manufacturing district, next into a home for wandering warehouses, then into massive shipyards, a wholesale district, freight-yards, and, in fact, almost every possible purpose except that to which geographical conditions and the trend of city development point, namely a beautiful residence park.

The Influence of Existing Property Values in Determining Proper Use of the Exposition Site.

Two conditions alone should suffice to indicate the wisdom of making a residence district of this site. First, the great manufacturing district of San Francisco lies to the south, where land is cheaper and has drawn about it the great masses of the laboring element of the city's population. Running diagonally across the city is Market Street, the principal business thoroughfare. The industrial life of the city is developed largely on the south side of this street, and the great area in this section of the city is built up of factories, warehouses, and the residences of those who are employed in them. It is possible for the city to expand almost indefinitely in this direction as this



SKELETON OF THE GENERAL PLAN, SHOWING THE STREET SYSTEM FOR THE RESIDENCE PARK TO OCCUPY THE SITE OF THE PANAMA-PACIFIC EXPOSITION AT SAN FRANCISCO

The Heavy Lines Show the Method of Securing an Increased Marine View by Using Diagonals as Streets of Entry to the Marine Boulevard. A–A, Main North and South Axis, Centering on the Column of Progress at the Northern End. B–B, Main East and West Axis, Centering on the Dome of the Fine Arts Palace. C–C, Business Centers, Along which Are also the Transportation Lines

property becomes more valuable, and factories and warehouses may extend along the southerly lines of the only railroad entering the city and in the direction of the cheaper land.

On the north of Market Street the area is fixed and cannot be increased, and the land values in this district must, beyond any question of doubt, eventually preclude factory and warehouse sites from the district.

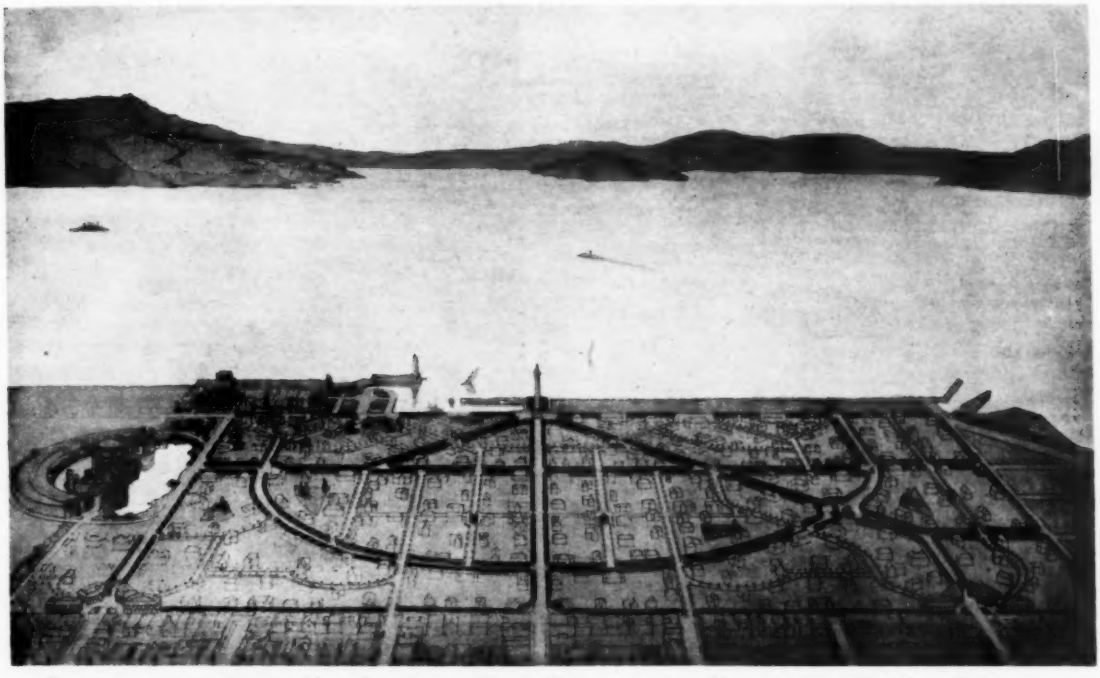
Scenic Value of Site.

The second factor is the superior scenic value of the northern part of the city. The hills and slopes in the northern district command a view of the Bay, the Golden Gate, and the Pacific Ocean, that can be surpassed in few cities in the world; and since in a city of over one-half million population there must always be pretentious dwellings, it is only logical to assume that they will seek locations with beautiful settings. This is made doubly certain by the fact that the southern portion of the city is so densely built up by the laboring element that it would be difficult to find locations for the pretentious dwellings in that district.

Again, San Francisco is developing along peculiar lines. For, despite the fact that the city is bounded on three sides by salt water, this location is substantially the only one where the residences could be built on the water's edge. Of the many miles of the city's shore there are only a few thousand feet where an imposing home could be built on the shore. However, it is not the purpose of this article to enter into another of the almost innumerable discussions of the merits of the present plan to make a residence district of the site of Harbor View, despite the opportunity to succumb to the temptation of again pointing out the value of city-planning.

Evolution of Accepted Plan.

In developing the plan for the park, a process of elimination was carried on; a great number of studies were made in an effort to secure a street system that would fit the unusually large number of local conditions. First, the lines of traffic were established and a general block plan worked out regardless of ownerships and other factors that might be controlled. As a result of these studies Plan No. 1 seemed to be the most desirable, but it was found impossible of execution as there were certain owners of property in the district who refused to abandon the idea of the district eventually being used for other purposes than a residental locality. Another plan was commenced on the property of those owners who were willing to develop along these new lines and, as a result Plan No. 2 was finally adopted and is now being established, as rapidly as possible, on the ground.



PERSPECTIVE OF THE ADOPTED PLAN, SHOWING THE THREE HERITAGES OF THE EXPOSITION, THE FINE ARTS PALACE, THE CALIFORNIA BUILDING AND THE COLUMN OF PROGRESS
The Two Business Centers are Shown in the Lower Right and Left Hand Corners

Factors Controlling the Design.

The site is almost level with a general slope from south to north, giving a drainage to the shores of the Golden Gate. The problems of grades were therefore practically eliminated.

The factors that control the design were as follows:

1. Lines and routes of traffic.
2. Tracks of prevailing winds.
3. Marine view.
4. Axes centering on predominating architectural features left by the Exposition Company.

The transportation lines are along Chestnut Street, which bounds the area on the south; and Fillmore Street, which intersects Chestnut at right angles one block west of its southeastern corner. This intersection of transportation lines suggests the business center at that point. From this center arteries radiate into the property, giving more or less diagonal routes of travel. The encircling boulevard affords a similar route of travel in the opposite direction of the main diagonals.

The Column of Progress.

The main north and south axis of the plan is approximately in the center of the property and is terminated to the north by the Column of Progress, one of the monuments left as a heritage of the Exposition. The two main diagonals also lie on axis with the Column of Progress.

The Palace of Fine Arts.

The axis of the main east and west thoroughfare through the property centers on the dome of the Palace of Fine Arts, that wonderful conception of Bernard H. Maybeck, which the people of San Francisco have wisely determined to preserve to prosterity. The eastern end of this axis terminates in a plaza formed by its junction with the circle drive.

The diagonals gave an excellent opportunity for disrupting and changing the directions of the streets, thus making it possible to avoid the long streets of continuous direction which seem to invite those winds which so annoy the stranger, while they become the joy of the resident of the city.

The prevailing winds of the district are from the water, or from the west and north. It has been demonstrated in such modern residence parks as Forest Hill that the winds in San Francisco lose their violence in the streets where the directions of the latter are changed frequently. For this reason the plan does not incorporate any straight street of considerable length, except where a vista upon some inspiring feature is desired.

Shore Boulevard.

The main boulevard of the district, and perhaps of the city, is along the shore. Frontage upon this is the most valuable in the property. By bringing the intersecting streets into this artery at an angle, no frontage, strictly as such, is lost; whereas, if the secondary arteries were led into this boulevard at right angles there would be a loss of frontage on it just equal to the sum total of the widths of these arteries. By grouping the dwellings about courts along the boulevard the frontage is again increased.

PARKING SCHEME FOR MAIN NORTH AND SOUTH AXIS, CENTERING ON THE COLUMN OF PROGRESS

VIEW OF THE ABANDONED PLAN, LOOKING WEST. Designed by Mark Daniels and Rendered by C. K Bonestell, Jr.

The final result is a total marine frontage in excess of that which could be secured if the entire length of the boulevard were interrupted by no streets at all. Another potent factor in determining the use of diagonals and north and south streets was the necessity of avoiding north-front property wherever possible. Since the better views are to the north, there seemed to be no other solution than the one adopted.

Building Restrictions.

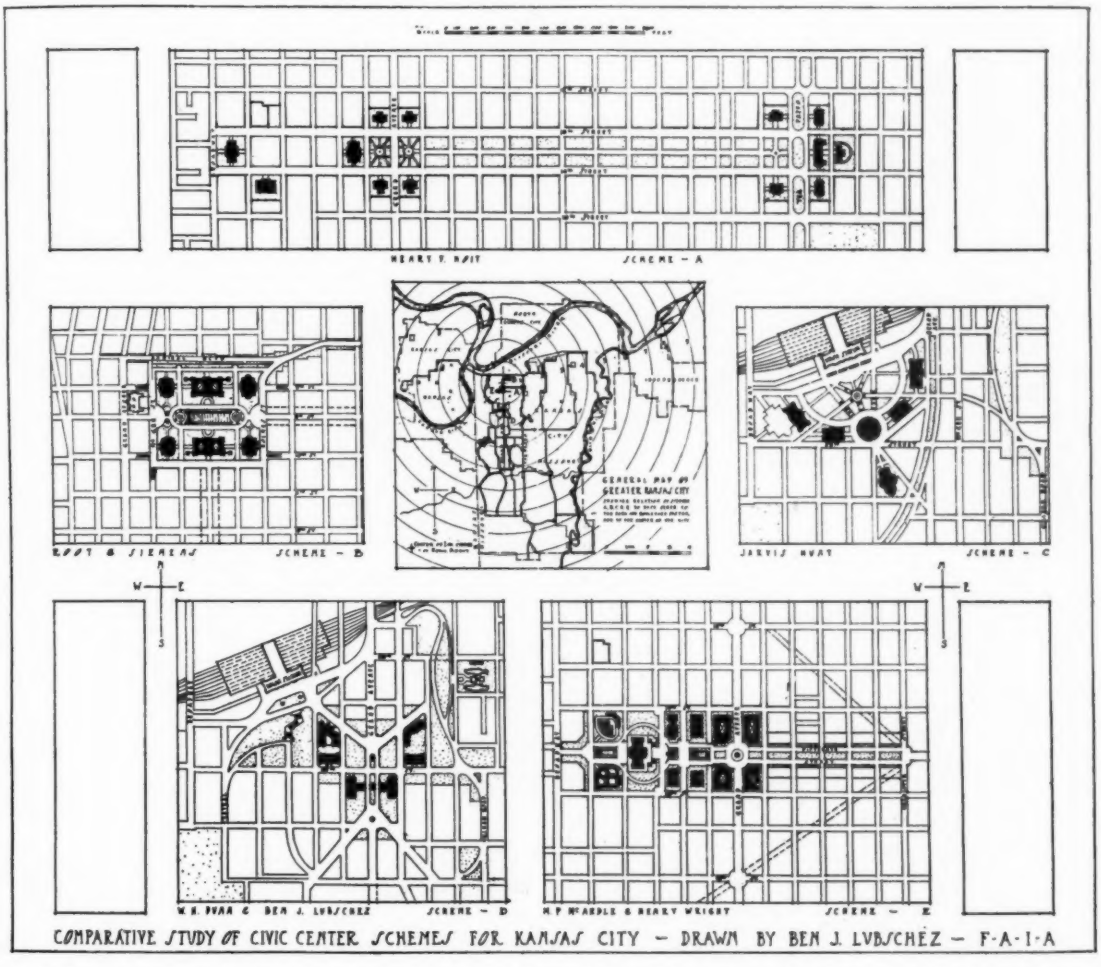
It is the intention of the owners to establish building restrictions along most modern lines, not only to assure the general character of the neighborhood, but to preserve a unity of architecture. All utilities, such as light and power lines, will be placed underground and installed before paving is commenced. Buildings will be grouped and restricted as to location so as to provide a maximum of sun, view, and air.

It would necessitate more space than here available to enter into a detailed description of a project that consumed some eight or ten months in preparation, while to enumerate the obstacles that were presented, in planning to satisfy a large number of individual owners, would consume volumes. The property is now subdivided into rectangular blocks with unnecessarily wide streets, and to convince all owners that a change of streets was advisable was, alone, an Herculean task. In some instances it became necessary to change the plan so as to leave portions of the old streets, if for no other reason than to leave ingress to the stable of the mule whose stubbornness made a change impossible. In other instances changes had to be made so as to make practical boundaries between holdings. Were it not for the perseverance of some few idealists, who wanted to see a fine district established in their city, and the intelligent coöperation of the city officials, it is doubtful if any change could have been agreed upon. But it is believed that a brilliant example has been set by San Francisco.

ONE OF THE NUMEROUS INTERIOR COURTS.—(Located at E and E on the Plan, p. 174.) From a Sketch by C. K. Bonestell, Jr.

Civic Center Schemes for Kansas City

By BEN J. LUBSCHEZ



COMPARATIVE STUDY OF CIVIC CENTER SCHEMES FOR KANSAS CITY - DRAWN BY BEN J. LUBSCHEZ - F-A-I-A

Before the city-planning movement was definitely known as such, it had a big start in Kansas City when, about twenty-five years ago, the nucleus of the present comprehensive park and boulevard system was established. Yet, despite this early start, the movement never developed along the broad lines recognized today, and Kansas City has as yet not considered a complete city plan. Let us hope that an impetus to the acquirement of this will be given by the City Planning Conference to be held there in May.

The next step in city-planning was taken about five or six years ago. The beginning of the great new Terminal Station and the granting to the city of several acres of park area opposite this building evoked the discussion of what to do with this park area and then of the possibilities of making the station building the principal note of a civic center group. This discussion led to the presentation of five civic center schemes, some including and some excluding the station building. These plans were presented by a committee of the City Club and were made voluntarily by architects within and outside the committee.

The first scheme (Scheme C) presented was by Mr. Jarvis Hunt, the architect of the station. This plan, although very effective on paper, would have been exceedingly expensive to carry out on account of requiring radical and extensive changes in topography. Its principal feature was the crescent-like arrangement of various public buildings in front of the station, with the City Hall and Art Museum on the principal axis of the station.

The other plans need not be considered chronologically, for they were made almost simultaneously and some months later than Scheme C.

Scheme A, made by Mr. Henry F. Hoit, was perhaps the most ambitious of all. It included a wide parkway

connecting Grand Avenue, the principal north and south business street, with the Paseo, the principal north and south boulevard. At the axis of Grand Avenue was the municipal group, and on the axis of the Paseo was the educational group, the first consisting of the City Hall, Courthouse, Hall of Records, and so on, while the second included the Library, Museum, and Art Gallery. This scheme was admirable in many ways, but also very expensive on account of the necessary condemnation of so much valuable land for the broad connecting parkway. This plan also extends beyond Grand Avenue on the west and includes the existing auditorium in a minor group.

Scheme B was presented by Messrs. Root and Siemens. This scheme is adjacent to Grand Avenue, on one side, and connects with Admiral Boulevard, a down-town boulevard connection, on the other. The plan shows an interesting study of the diversion of traffic ways, both on the surface and in subways.

Scheme D was made by Mr. W. H. Dunn, the Superintendent of Parks, and the writer. It was criticized at the time for placing the municipal and other public buildings too far from the present heart of the city, but it has many interesting features. It fits the topography admirably and connects numerous short streets which now have either no reasonable beginning or end. Its principal feature is a great tower or campanile, the central motif of the municipal group, closing a vista of a mile and a half down Grand Avenue. It also has a vista down one diagonal street to the Terminal Station and down another to the existing Municipal General Hospital.

Scheme E was submitted by Messrs. M. P. McArdle and Henry Wright. This is an interesting plan and shows some slight resemblance to Scheme A. It shows a shorter and less important east and west parkway leading to the municipal group on the axis of Grand Avenue. Here the distinguishing feature of this plan begins. We are led, by a series of pools and terraces, from Grand Avenue to Baltimore Avenue, where the Art Gallery stands on a high hill. On account of this feature, the authors called it "The Acropolis Plan." There are also shown, tentatively, two diagonal streets which should prove valuable as traffic ways.

It will be noticed that all the plans are either on the axis of or adjacent to Grand Avenue, and that the locations of Schemes A and E and Schemes C and D overlap somewhat. None of the plans has gone beyond the preliminary study stage; meanwhile, the acquisition of land for any scheme is becoming more expensive and difficult.

After careful study and deliberation, it seems that none of the schemes is entirely satisfactory, and that perhaps the best and most effective plan would be to combine the Grand Avenue group of Scheme A with Scheme D, treating Grand Avenue in some monumental way as a connecting link.

The Denver Civic Center

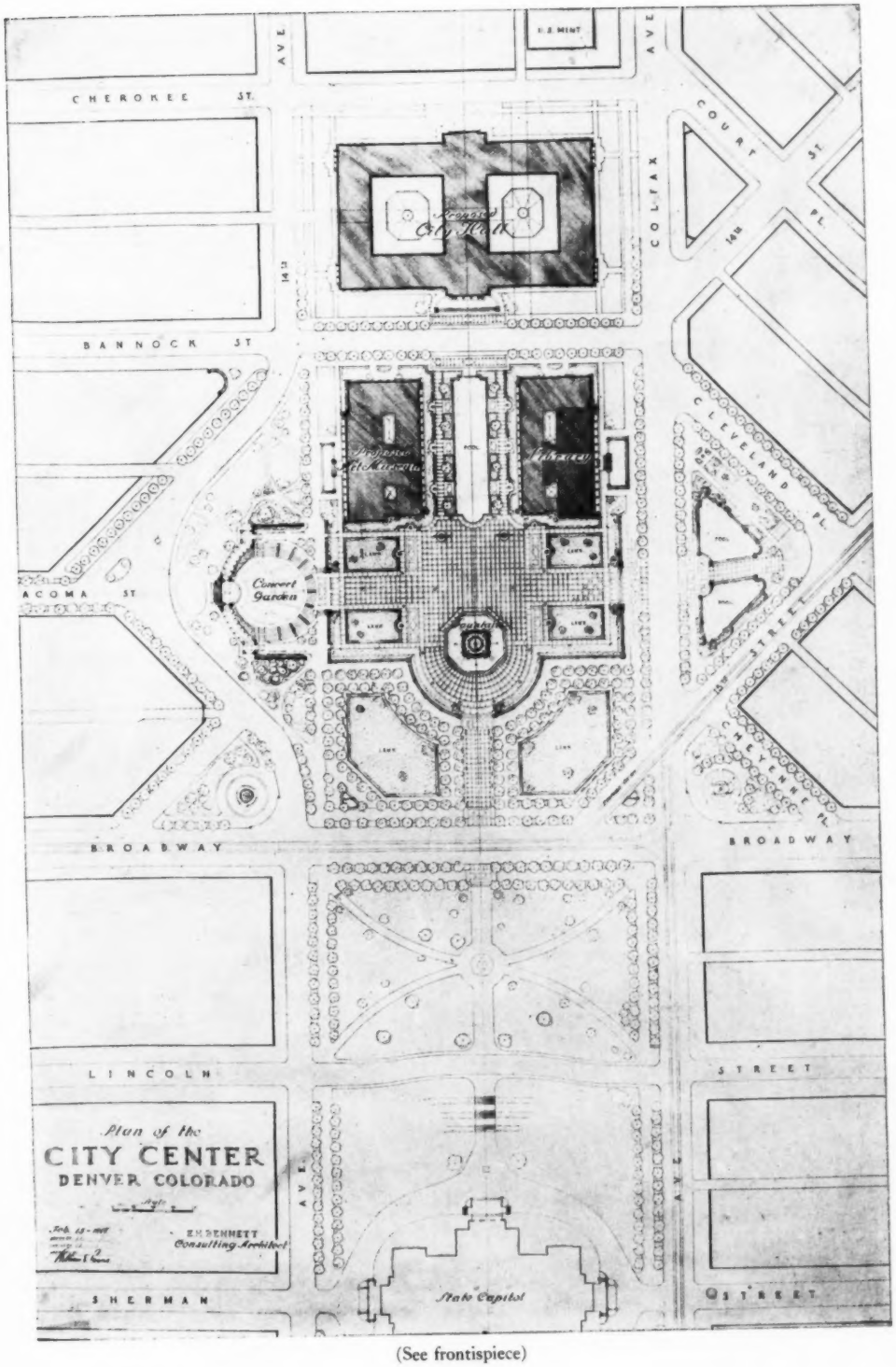
Denver is remodeling her civic center plans (described in the Journal for November, 1915) on a scale surpassing any of the proposals submitted since the project was first conceived, about ten years ago. The new development was started in May, 1916, when the Mayor and his cabinet engaged E. H. Bennett, of Chicago, to revise the plan to include as one of its chief features a court of honor for civic benefactors. As the illustrations show, the central portion of the site is to be given over to a broad paved area which will provide a place of assemblage for many thousands of people. Liberal provision is made, however, for the planting of shade trees and shrubbery to afford variety and background for statues, balustrades and decorative features. Space has been reserved for a new art museum, adequate for Denver's increased needs and in architectural harmony with the enlarged public library. The proposed site for a new city hall occupies an entire block opposite the art museum and library bordering on the intersecting streets. Thus located, the City Hall may be designed to harmonize with the existing library and the future museum.

The Main Axis.

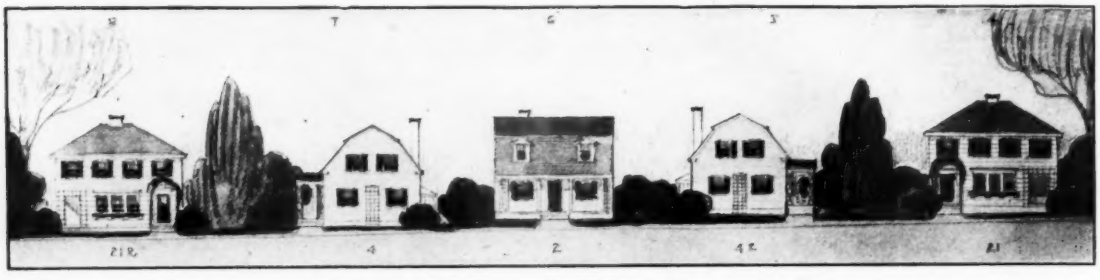
At one end of the main axis of the civic center is the capitol (not shown in plan or perspective) from which a vista may be had of the City Hall. In this vista is a fountain of monumental proportions, occupying the center of the great open area. Funds for the erection of the fountain have been provided by citizens of Denver, and Lorado Taft, of Chicago, is now engaged in modeling the fountain. In contrast with the central fountain, a pool is proposed between the library and the museum, in which will be reflected the dome of the capitol, looking east, and the façade of the City Hall, looking west. The entire space between the flanking buildings will form, in fact, a court of honor which should be adorned with appropriate sculpture.

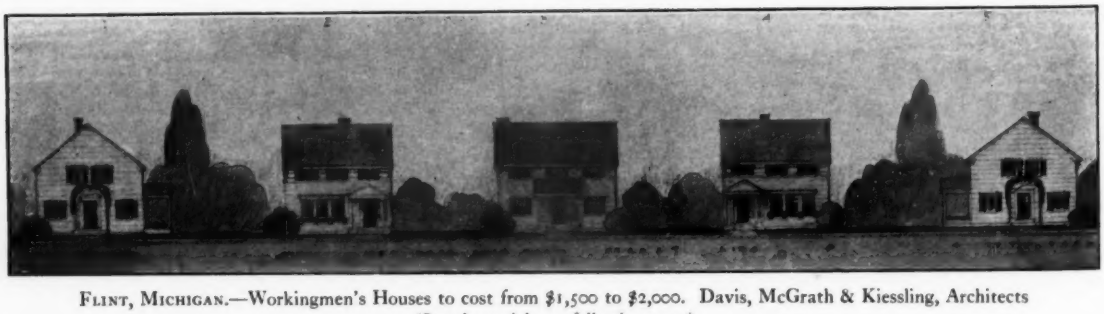
The Transverse Axis.

At the north end, at the right of the transverse axis, is the principal approach from the business center of Denver. Here a triangle is shown, with pools of water and grass spaces. This portion of the scheme is assured by the action of the city, and detailed plans are being prepared. At the other end of the transverse axis is to be placed the concert garden and shell for band concerts, to be flanked by the colonnade arranged in an arc of a circle. On the columns of this latter structure will be engraved a fitting tribute to citizens who have contributed gifts for the beautifying of the city or for adding to its educational advantages. The floor of the concert garden will be depressed about five feet below the general level. Advantage will be taken of the sloping surface by the introduction of permanent seats of marble or concrete, semicircular in plan. Ample provisions for tree-planting is made at this point to screen this part of the development from the surrounding business structures. This feature of the civic center has also been assured by the action of the city authorities, and detailed drawings are now being made. The Pioneer Monument, by Frederick MacMonnies, occupies a site in the triangle shown in the plan at the right and to one side of the center at the intersection of Broadway and Cheyenne Place. A site for a



(See frontispiece)





FLINT, MICHIGAN.—Workingmen's Houses to cost from $1,500 to $2,000. Davis, McGrath & Kiessling, Architects
(See the article on following page)

similar monument on the opposite side of the center is shown also.

Lighting.

In order that this center may be made, in every way possible, a vital part of the city by night as well as by day, a luminous and decorative lighting scheme, using both direct and indirect methods, will be adopted—one that will be free from the glaring effect common in the city streets.

Traffic and Building Heights.

Traffic studies have been made to determine the effect of the various elements of the plan on the movement of vehicles. Some minor changes in the street system have been proposed. The control of the height and use of the buildings on the surrounding blocks is being considered, and it is recommended that this be done in connection with general districting for the entire city. The plan of the civic center has been considered with reference to the state capitol grounds and building, but no radical changes are proposed. It is recommended that a revision of the plan of the area about the capitol be undertaken in the near future, and that additional grounds be acquired for this purpose around the capitol building, and that building development be regulated on the adjacent land. By this means the Government and the municipal centers may be made to contribute to each other and conform to a thoroughly harmonious whole.

Housing Developments in Flint, Michigan

In Flint, as in scores of other towns, increased industrial activity has created a demand for dwellings far in excess of those available, in spite of the 1,500 homes constructed by real estate operators in 1915. The Civic Building Company of Flint, organized by members of the Board of Trade, has attempted to meet the demand for homes by building several hundred houses according to a preconceived plan, based on competent professional advice. It is intended that the houses shall be sold to individual owners at low cost on an easy-payment basis

The Site Plan.

As practically all the available land within the city limits had been acquired by speculative builders and was in course of development, the Civic Building Company found it was necessary to buy up small parcels widely scattered or to go outside of the city where land could be acquired at farm prices. It was very wisely decided, therefore, to make an entirely fresh start and to acquire a 400-acre tract bordering on the city limits. The work of laying out this property was placed in the hands of William Pitkin, Jr., landscape architect, of Rochester. His plan calls for a total of 1,500 lots of a minimum size of 50 by 100 feet—or a total of 3.8 houses per gross acre. Two blocks are available for stores and business buildings. The streets have been laid to link up properly with existing or proposed thoroughfares, and the layout forms an integral part of the city plan of Flint. Twenty-two acres of woodland have been set aside for park purposes, while sites for a branch library, three churches, an amusement building, and well-planned school lot have been reserved.

In view of the pressing need for houses, many important problems were given second place temporarily in order to get the first 200 houses started quickly.

The House Plans.

The problem of the architects, Davis, McGrath & Kiessling, of New York, was to design houses for each lot with from five to eight rooms, at a cost for construction of from $1,500 to $2,000. Three-fourths of the houses were to be of five and six rooms. The dimensions of the houses range from 17 by 27 feet for five-room houses of one and one-half stories, to 24 by 27 feet for eight-room houses of two stories. The houses are provided with living-room, dining-room, kitchen and bathroom, hot-air furnaces and a drainage system connecting with properly constructed sewer.

An old New England village type, with the simplest possible roof-lines, close eaves, small-paned windows and blinds, has been adopted for the exterior treatment. Simple latticework is introduced here and there to relieve the bald spots, and flower-boxes are used under windows and on the sides of porches to provide further elements of individuality.

While an effort has been made to use the smallest possible number of house plans for reason of economy, the architects have endeavored to obtain a maximum variety of effects. There are, therefore, twenty-nine exterior designs and further variations are obtained by the use of different sized shingles, siding, and by the color schemes used. Set-backs from the street line vary from twenty to thirty feet. Groups of from three to five rooms in each block have a further set-back leaving the remaining houses set slightly forward. The roofs throughout are of uniform weathered color and roof lines in each block have been studied to give a pleasing composition.

First Steps in Zoning Movement for Chicago

The first step in a plan for districting or zoning the city of Chicago was taken recently when a member of the Board of Aldermen brought to the attention of the city authorities a plan for the protection of people and property in the city against the evils resulting from the present unregulated shifts of industry. His plan provides for industrial, residential, and such other zones as conditions and surroundings seem to warrant, and in discussing the advantages of the restrictions proposed in the interest of intelligent and systematic growth, he cites the steps taken by Los Angeles, New York, and other cities. The problem of directing and influencing the growth of rapidly expanding cities—in which the general civic good is the prime consideration—is an essential feature of city-planning, and intelligent city officials, stimulated by the example of other great and prosperous communities, are rapidly bringing their influence to bear in a direction that will secure this much needed protection.

"The New Competition"

THE OPEN-PRICE SYSTEM AND ITS RELATION TO THE BUILDING INDUSTRY

By SULLIVAN W. JONES

ON the evening of February 5, 1917, in the Hotel Biltmore, New York, the Institute of Electrical Contractors gave a dinner to a small group of architects, engineers, general contractors and sub-contractors, extraordinarily representative of the building industry. The occasion afforded those present an opportunity to meet Mr. Arthur Jerome Eddy and to hear him talk on the "open price." I dare prophesy that this dinner will prove historical—will prove to be the beginning of a new era in the field of building.

The Institute of Electrical Contractors of New York is one, perhaps the latest, of the many "open-price" associations organized upon the plan for stabilizing industry originated by Mr. Eddy. In introducing Mr. Eddy, Mr. Comstock, the President of the Institute said: "Publicity is the greatest educational force in modern civilization. Publicity is the essence, the heart and soul of the open-price policy in business. There are other open-price associations, but ours is the first to act upon the realization that the open-price movement is of vital importance to the whole of the great industry of which ours is but a small part. From our short experience with it we are convinced that the open-price plan should be generally adopted. It has remained for the Electrical Contractors to light the way."

Men who had been satisfied that their competitors were "crooks," forgot their grievences and sat around that table listening in rapt attention while Mr. Eddy laid down the principles of his simple plan and propounded a common-sense philosophy of business that answered the vague questioning in the mind of every thinking man present.

He carried his listeners into a world where business is an intellectual pursuit and success is not measured wholly by the accumulation of dollars; where secrecy and its handmaidens, intrigue and deception, are unknown, and knowledge is made common property—and knowledge has not the semblance of truth until it is common property; where the individual works for the benefit of all in order that in the end a larger benefit may accrue to him; where the Biblical maxim "to give is better than to receive" becomes a precept of sound business.

Mr. Eddy made very many of those who heard him feel that such a world was desirable, not only because it made for better business, even more profitable business than is possible under present conditions, but also because it offered moral as well as practical satisfaction in successful work and raised mere selling to the level of a profession.

The millenium, you will say; Utopia, the dream of an idealist! But Mr. Eddy showed himself to be a very practical hard-headed idealist with a long and varied business experience, a thorough knowledge of men. And when you once see, as Mr. Eddy has seen, as I have seen in a very limited way, the psychological effect of honest unrestricted coöperation, you will understand that Mr. Eddy's millennium is within reach, is attainable, is in fact here, now, if the first move is made, that of taking your competitors into your confidence. The change that it works in men is truly amazing. One contractor, now a member of the *Institute, had declared he would not join because a certain other contractor was a member. This same man sat for two hours after the dinner trying to justify to the other a bid he had put in which was $1,600 less than the bid of his former "business enemy." The success of the open price lies in the fact that a man will not knowingly do things which will later call down upon him either ridicule or accusation, not even in a world where he may imagine himself driven under the lash of necessity's whip to the ruthless pursuit of profit and the use of power to purely selfish ends.

I had read Mr. Eddy's book "The New Competition"—read it twice in the last two years, and I understood the bare facts of the argument for the open price. But the human touch, the magnetism and enthusiasm of the speaker were needed to lift the printed words out of the realm of cold, unresponsive theory and logic and to give them the vitality of faith, the dynamic force of an overpowering conviction. I know very many of the men who listened that night to Mr. Eddy went away with the firm resolution to bend their energies toward hastening the day when this new order of things shall prevail.

Mr. Eddy began his remarks by saying he would rather talk about art or architecture than the open price because he knew less about them, and "men prefer to talk about things of which they know little, and always talk most volubly upon subjects about which they know least." I could not help feeling that perhaps he had discovered one of the besetting sins of men in the building industry and wanted us to know that he had. His house, he said "had its roots in the classic architecture of the Greeks." He had traveled and studied, drawing his inspiration from the work of those ancient masters of art—and was building himself a "Californian bungalow." "Sufficient unto the day is the house thereof" were his last words on architecture. But as he later talked upon the subject of which he did know something, I found that he had also drawn upon the ancient Greeks for his ideals; his philosophy had Platonic roots.

"In a nutshell," said Mr. Eddy, "the open price consists of telling your competitors what you are doing and the price you are asking for your goods or services. It does not concern future prices but past prices, quotations made. If you know what your competitors have done up to last night, you will come pretty close to knowing what they will do tomorrow, and you can act accordingly with intelligence and wisdom. But before we can work such a radical change in business policy, before we can effect a cure for our present troubles, we must correctly diagnose those troubles. We are going to drag this evil thing we call competition out into the sunlight and examine it closely."

*Institute of Electrical Contractors.

He then outlined competitive conditions as they exist, showing how the instability of business, the high and rising cost of selling and, consequently, high market price of products, the trickery and deceit and fraud practised, were the natural and inevitable results of secrecy. "The condition that a standard article has no price known alike to competing manufacturers and to purchasers, places the very foundation of our commercial structure upon quicksands. Do not deceive yourselves," said Mr. Eddy. "There is, in reality, no such thing as secrecy in business." This statement reminded me of one made by Dr. Stratton of the U. S. Bureau of Standards at the first meeting of a conference committee of which I am a member. The manufacturers of the product under consideration showed considerable hesitancy about telling what they knew. Dr. Stratton, after listening for some time to the jockeying that was going on around the table said: "Gentlemen, I have sat at many conferences such as this, and I have found from experience that there is always one of two reasons back of a man's refusal to talk about his product: either he has nothing to say, or what he has to say he is ashamed of." It is amazing what men do to find out what their competitors are doing, and they generally succeed. The essential difference, as outlined by Mr. Eddy, between frankly telling and letting the other fellow dig, is that at the bottom of the latter process lies suspicion, and suspicion fills the mind with hostility. It leads to illegal combinations and agreements, to price-fixing and many other arbitrary and artificial efforts to stabilize business, all of which must fail and have always failed because they are conceived in an atmosphere of corruption and are fundamentally and essentially wrong in spirit and purpose. Suspicion is the seed from which springs brutal, unfair competition in which competitors become adversaries and enemies, to be dealt with as such—overcome, strangled, destroyed. Suspicion is the death of competition. Remove suspicion, and competition becomes what it should be; the life of trade.

This new competition of which Mr. Eddy spoke is a competition of efficiency in which excellence of product, fairness of method, honesty of coöperation are the elements of success. Such, in substance, were the statements made by Mr. Eddy, and he drove his points home with illustrations drawn from the conditions and incidents of the business life with which we are all familiar. He cast a new light of broader understanding on our present competitive struggles, illuminating the dark places, piercing the fog which has blinded us and led us into pitfalls.

Speaking of the effect of secret prices or no price on merchandising, Mr. Eddy declared: "Nearly all manufacturers and purveyors of goods think that their high-salaried salesmen are working for them. They are not. Let us see what happens. The salesman calls upon a customer and is given to understand that a competitor has quoted a lower price. From that moment the salesman is working for the customer against his employer's interests. He presses his employer for a lower price. He upsets the local sales office. He gets the home office on the telephone; he telegraphs; and if the sale is of sufficient importance, he gets on a train and goes to Pittsburgh or Chicago at the employer's expense, to argue the customer's case."

Mr. Eddy said that the experience of a great drygoods house with retail and wholesale departments is an illuminating example of the difference between "no price" and "open-price" methods. "In the retail department where prices are established and displayed, a *$6-a-week-girl can sell $5,000 worth of goods in a week, whereas in the wholesale department where prices are more or less secret and variable, it takes a man drawing twenty times the girl's salary to sell the same amount. When the price of goods is known to all, price is removed from haggling, and the quality of the goods becomes the prime consideration in the transaction. It may be laid down as a business axiom that any form of competition which is not an incentive to increased excellence is destructive. That is the acid test. One does not have to search for evidence of the character of present-day competition.

When the price is unknown or uncertain, the purchaser is never sure that he has the lowest possible quotation. "He becomes obsessed with the idea that he can do better, that he has not reached the bottom." Trading with him becomes a mania, and he will resort to actual falsehood to victimize the man who is willing to sell at any price. "This condition is the one most bitterly complained of by subcontractors," said Mr. Eddy. "It is not the fault of any individual, but under pressure of a vicious system, general contractors and owners, and some architects and engineers, often drive prices down to levels which prevent the delivery of work up to the standards established by the specifications, and which they themselves desire. That sort of thing cannot happen under the open price. The owner and the general contractor cannot say or intimate that they have a lower figure when such is not the case, and get away with it." Mr. Eddy said the curious thing about this condition was that the subcontractor did not seem to understand the psychology of such trading. "It is always the low bidder that is worked upon. Why should a purchaser waste his time trying to get a high bidder to reduce his figure when he already has a lower one, except, of course, in special cases, when one bidder is shown a preference or it is desirable for some reason that he should do the work?"

"Another thing the statistics of open-price organizations demonstrate," Mr. Eddy continued, "is that there is always far less competition than is supposed; that is to say, buyers select the contractor they want without asking for competitive bids in far more instances than anyone would believe who had not seen the reports, yet under the old secret system the one bidder who is asked is often wrongly led to believe he is in competition when he is not, and he cuts and pares his bid and skimps the work, thereby defeating the very object of the owner or architect to secure the best work at a right price." Taking up a sheet of statistics compiled by the electrical contractors' organization, Mr. Eddy quoted from it to show that during the month of January members of the Institute of Electrical Contractors collectively filed bids on 163 jobs amounting to more than $500, but that only one bid was filed on 118 of these 163 jobs. Thus, there was competitive bidding on only 31 per cent of the jobs. But the electrical contractors did not understand the true conditions until they began reporting their business to the organization.

Such a condition is unwholesome. Too many are justly

*One assumes that this pitiable stipend is used to strengthen the comparison, and not in justification of the business methods which depend upon such a wage scale for their success.—Editor.

dissatisfied; the industry is in a state of turmoil; uncertainty rides in the saddle, and competition has been killed. It is the direct result of the impossible situation which has developed under the old competition; of the bad work which followed a competition of price-cutting and the sacrifice of legitimate profit.

Mr. Eddy said that the idea of the open price came to him in connection with the trouble growing out of futile attempts at price-fixing in a branch of the steel industry. The president of one of the large steel companies came to him with the plans of an association and said that the arrangement was unsatisfactory to his company, and he wished to withdraw, partly upon the ground that it might be illegal and partly because the prices agreed upon were not adhered to and nothing was being accomplished except the acceleration of "cut-throat" competition. Mr. Eddy took the papers home and studied them for several days. He examined into the conditions which had led to the price-fixing agreement and the net results. Entirely aside from the legality or illegality of the whole plan, Mr. Eddy found it to be wholly unsound economically. He reasoned thus: A number of men meet and fix upon the prices at which their respective companies are to sell their products for six months to come. That done, there should be no reason why these same men could not pack their trunks and spend the six months at Palm Beach and let inexpensive salesmen sell the goods. Did they do it? No. Why? Because they have no intention of sticking to the agreement, and they know that none of the others will. In spite of the fact that they committed themselves to a selling price for their products, they found they had to be on the job every minute to handle the business issues of the day. Well then, why not make it frankly a day-to-day business? What right has the high-salaried executive of a corporation whose duty it is to be ready each day to give his time and his brains to the service of his company, to enter into hard and fast agreements which bind his company to fixed prices for months ahead? When he does that he limits his usefulness for the period, and a clerk can run the selling end. Mr. Eddy worked out his open-price plan and, representing the president of the company, went to the next meeting of the association and announced that his company was going to withdraw from the agreement, but that every morning each one of his competitors would find upon his desk a complete list of the quotations made the day before by the company Mr. Eddy represented. "Henceforth," said Mr. Eddy, "we propose to deal with past prices, not future prices. We will deal with facts, not promises, and there will be no hard feelings over broken agreements." That was the first open-price association.

In giving the gist of Mr. Eddy's remarks I have not attempted to set down in detail the open-price plan. Those who are interested should read "The New Competition." I have only tried to impart to others the impression Mr. Eddy's words made upon me.

Mr. Eddy's remarks were followed by a general discussion of which the most interesting aspect was that every statement made, every argument advanced for or against the open price, indicated the pressing need for stabilizing the building industry. There were objectors. There always are objectors, reactionaries, conservatives and cautious persons who have to be shown. Their presence at this dinner was deliberately planned. They precipitated discussion, kept the ball rolling and helped others to reach correct conclusions.

One of the general contractors present said that the troubles in his business were not due primarily to instability of prices; he and others were not driven to adopting questionable methods by the necessity of getting the lowest possible quotation. The great trouble was that the drawings and specifications they receive from many architects for the purpose of estimating were incomplete and ambiguous. He said much more in very forceful language, but I felt no offense, and I am sure the other architects present did not. The discussion had reached a level where we were handling the truth without reserve and where men were thinking of the smallness and the narrowness of their personal efforts and self-interest. This general contractor claimed that the subcontractors did not know upon what they were bidding; that was at the bottom of the general contractor's uncertainty. There was, in fact, no basis for competitive bidding.

Mr. Eddy answered him by saying that the point he raised was beyond the reach of the open price. But when men get together and in open frankness discuss the cost of production, prices, and the other economic problems which confronted them, they could, and did, go further. The open-price association in the architectural iron and bronze trade was struggling with this very problem, he said, and he believed they had found the answer in establishing a technical bureau which would standardize the classes of work and prepare estimates of quantities. The Quantity System, properly developed, was the complement to the open-price plan.

"These problems are up to you, gentlemen, to you architects and to you general contractors. Your hosts, the electrical contractors, are too few in number and represent too small an industry to make much impression by themselves; they can do nothing without the active and sympathetic coöperation of owners, architects, engineers and contractors; with your help they can go far toward remedying the abuses that affect them especially and by so doing help you to place the great building industry of the country on the high plane where it belongs."

Mr. Cass Gilbert, Mr. A. B. Trowbridge, Mr. C. W. McMullen, Mr. Paul Starrett, and Mr. Baldwin all expressed views, some of them most interesting, particularly those expressed by Mr. Gilbert, but I cannot devote space here to repeating them. They merely laid greater emphasis upon some of the aspects of the open price.

Have you ever sat through a play that gripped the soul and noticed that when the curtain dropped the audience remained seated, loath to break the spell? Well, that was the way those men felt that night when the thing was over. Mr. Eddy said to Mr. Comstock "Your guests do not seem to want to go home." I had quite forgotten the "open price." It had become the inconspicuous beginning of a tide of broader understanding. I was trying to grasp the potential possibilities of expansive coöperation; the infinite corrective power of mobilized thought and effort. There seemed to be nothing impossible of accomplishment if men were animated by the spirit which this simple instrument of open price created in them. To me, that was the chief effect and value of Mr. Eddy's talk.

How Shall We Teach Something About Art? II

A DISCUSSION BY ALFRED M. BROOKS*
Head of the Art Department, Indiana University

WHEN Nature would produce an artist, she bestows a twofold gift upon her chosen one. She gives him a cunning, i. e., a mechanic, hand. She gives him an imaginative and logical mind, i. e., a philosophic equipment. To understand, which is to appreciate, the work of an artist; to comprehend the significance of art, apart from specific examples of any particular art, is the goal of the humanities. Not less are these the avowed, though often the grudgingly avowed ends of that sort of education which is styled liberal. Colleges and universities are the institutions which profess to give and are alone resorted to for such education. Seldom, of late years, despite this purpose to which they are vowed, has the vow been kept faithfully. An obvious deduction follows. The academic world should do all it can, which is a vast deal more than it is doing, to further intelligent study of art—works, theory, history. The corollary of this is, make the necessity of art more generally and deeply felt.

To every man Nature gives a touch of cunning-handedness—a touch of philosophic-mindedness. Ideal higher education, if truly liberal, would be that education which should develop to the utmost these twin capacities peculiar to man. Actual education during the past half-century has not sought to do this thing. In the majority of cases it has intentionally gone about not to do this thing. The method has been, and is, to feed the cunning, the technical, the mechanic, and to starve the philosophic. Its way has been to train its charges most assiduously in the practical and to turn them away from the imaginative. For proof of this, in respect to the art of architecture which, for its well-being, requires, more than any other art, complete merger of the practical and the beautiful, vision and technique, I adduce the fact that signs of real grief over the barbarous destruction of Rheims cathedral have been relatively few in our highly prosperous but not highly educated country. How is it that we have not grieved more or been more indignant? Simply because, as an educated people, we have not been taught that this most glorious building embodied more than any other of what civilized and cultivated men recognize as reasonable, lovely, and sublime. I say not a word of the human associations of centuries which it had gathered to it, or the religious sentiment of ages which, issuing from its sacred precincts, has done so much to make gentler the heart of man—because we have not been taught how wonderful it was; how technically splendid; imaginatively, how beautiful. Who should have taught us, those of us fortunate enough to have access to so-called liberal education? Who should not only have offered us, as a few have, but urged upon us, instruction in this matter and matters kindred to it? Emphatically, the learned men who are the builders of that wonderful structure known as the academic curriculum.

Speaking from the practical angle, architecture is the most important of all the arts. By the great majority of men, past and present, who have viewed it from the esthetic angle, it has been acclaimed the most beautiful. Beyond a doubt it is the art which adds more to the dignity of a civilized people than any other. How insignificant a place it holds in the college and university—technical schools are another consideration—is amazing if not staggering. Many an institution of higher learning does not have the word in its catalogue. The fact is symptomatic. It represents one of the moves made, both covertly and openly, over and over again, during the well-planned and executed educational campaign of the past fifty years against subjects classical, or savoring of the classics. First, by crowding out Greek, the language which, more than any other ever has, lent itself to the expression of intellectual experience and the activities of imagination; by crowding out this repository of so great a part of humanity's best and clearest thinking; by more and more heavily discounting the classics in general, and not alone those of Greece and Rome, for there is many a classic of the Middle Age and Renaissance, classic of architecture not less than letters, which present-day colleges and universities relegate to the domain of the unvaluable, if not wholly valueless, because not practical by persistently seeking, through the last ten academic generations, to turn the attention of Young America away from the past, and all the significance which it holds, to the present things of immediate utility, applied science and the unlovely, though physically comfortable, world of its making; by advancing these and other similar movements with might and main, institutions of higher learning the country over, with but very few exceptions, have placed to their long discredit the appallingly unimaginative, hence vacant, lives of numberless so-called and often doctored, educated men. For them there is, and can be, no grief when even "the shadow of that which once was great" passes away, not to mention the passing in a moment of *schrecklichkeit*, of vengeful wrath, before their very eyes, of many complete monuments—realities but a *short* time since—which have long been the glory of civilization, and should have stood, through ages yet to come, for the teaching and the inspiring of innumerable men.

The arraignment is sad and bitter but not futile because not mere scolding. There is yet time to change. There yet stand, and shall, after the present zeal for destroying beautiful old churches and town halls has worked its partial will, many splendid things of architecture. Then, too, the bare ruins of what was so glorious as Rheims will become a fruitful source of life to generations of unborn architects and of sad satisfaction to future lovers of architectural beauty throughout the world, just as the ruins

*Mr. Brooks is the author of "Architecture and the Allied Arts," which was most appreciatively reviewed by Mr. Cram, in the Journal for September, 1914.—EDITOR.

of the Parthenon have so long been. If the university and the college will but increase their efforts, which hitherto have been so weak, to familiarize youth with the world's best architecture and to enlist the interest of youth in and beget its love for such architecture, there will come about —college and university can bring about—a very different state of affairs from that which pertains in our unlovely present, all intent upon what it believes, and is too often academically taught to believe, practical; a present which, through its immediate half-century of past, has been taught in no small degree to regard the devotee of beauty, not only in architecture but elsewhere, at worst as a sort of fool and at best as a freak. When our institutions of higher learning shall begin to give a tithe of the attention now bestowed on practical education, so-called, vocational education, shop-work, cooking, dressmaking and innumerable kindred and, in their place, important subjects, to the study of the universal art of architecture, we may begin to hope for noble buildings wisely placed amid beautiful surroundings; in a word, for such cities as shall adequately express the ideals, brains and wealth of a great country. Until then, we may not hope.

To learn to understand the work of a mechanic hand working mechanically is not difficult. Neither is it a difficult matter to impart the knowledge necessary for such understanding. To learn to understand the work of a hand trained to obey implicitly the dictates of a highly imaginative and thoroughly logical mind, bent on combining use with beauty, is a very different matter. So, too, is the imparting of the knowledge necessary to such understanding. This latter implies education in art of a really sound sort. It is true that much time and thought have been expended in recent years upon questions which bear upon this kind of education, particularly the place which it should hold in group-courses looking to the B. A., and higher degrees. We should not overlook or belittle the fact that much which was well worth accomplishing has been accomplished. But this further fact should be looked squarely in the face. We have done little more than make a start, and this start pertains in great measure to the art of painting and in very small measure to the art of architecture.

On the side of painting, and for that matter the graphic arts generally, theory, history, practice, as taught in college courses, there is room, legitimate and plenty, for actual execution. This is not the case with architecture, the theory and history of which are, obviously, all that can be compassed in a classroom. And just because the classroom so generally and so vainly seeks to admit and abet actual execution, thus to deserve the all-coveted epithet of practical; just as it seeks to make instant and visible application of what it teaches, so does it go on excluding, as it always has excluded, the subject of architecture. If, as most academic authorities would stoutly maintain, the B. A. and higher degrees represent, in theory at least, such intellectual training as shall make the trained man capable of pursuing sustained mental effort along logical lines of investigation, the goal of which may be either reason, or beauty, or both, then, surely, these same academic authorities should not only admit, as a good many of them do, but also heartily encourage, as extremely few of them do, the study of the most logical as well as one of the most beautiful of all the arts, the art of architecture, to say nothing of it as a *sine qua non* of civilized society. This brings us to the question of how the study of the theory and history, significance and purpose of architecture may be made thoroughly practical despite the fact that such study in the average college classroom can, at most, mean nothing beyond a negligible amount of drawing and tracing, useful as a means of furthering understanding of the subject, but in no sense implying a practice of it. Let us meet the academic worshipers of the god of practicality in their own temple.

Architecture, more than any other art, creates and fixes the environment of civilized society. It is the art which, more than all others, denotes the fact of wealth and declares the manner of its spending. It is the one art in which every successful, or moderately successful, man takes part sooner or later, either as a private citizen building his own house or place of business, or, in public capacity, sitting as member or chairman of committees on the erection of civic, religious, or governmental institutions, —chapel, church, cathedral, schoolhouse, college building, hospital, museum, library, city hall, jail, capitol— these and many more, in every size and of every sort. To put it differently, architecture is not only the art, but the science as well, upon which we spend a very large part of all our money. Is it a really thorough-going system of practical education to make use of the slogan of so many present-day educators, which for the most part, and often wholly, omits architecture from its prescriptions? And how then about the education which has for its goal the filling of men's minds with knowledge of the best that has been thought and done by their forebears? This, together with training men's minds to deal appreciatively, which is wisely, with the principles, not less real because intangible, upon which that best was produced, and alone can be produced—best in the present consideration meaning architecture?

In all architectural design, in degree as it approaches perfection; in all works of architecture which have long been, and continue to be, potent agents for culture among men who truly believe that beauty is its own excuse, and that the effort to impart a liberal education should include the effort to further an intelligent passion for beauty in all of the arts which are practised by men; in every example of architecture which stands high in the scale of beauty and, for doing so, higher in the scale of service, there is more than one liberal lesson which, once learned, will help the student to push his way forward along that road which is the endless path that cultivated men travel with ever-increasing delight to the end of their days. The present state of knowledge about architecture on the part of most college graduates is an absolute blank. Few know even something about it; very few know much. We should remember that upon the present depends the future. What the past has been in this connection the present proves. It should be the care of university and college, here and now, to provide against a continuance of the present lack of knowledge and interest in this great art by offering courses, really liberal courses, in it and by urging students to take these courses. Art, and architecture in particular, as Viollet-le-Duc says, "does not consist in this or that particular form but in a principle,

a logical method." It is courses on these principles, this logic, together with all of practical service which they can render and of beauty which they can beget, that should be offered, and, in all legitimate ways, made attractive to the utmost.

The educated man is the man who is at home among principles and is master of logical methods. The liberally educated man, the cultivated man, is he who loves that beauty which invariably accompanies every wise application of principle and every logical application of method; who sees his authority in the works of Nature and from her works draws his inspiration. In the great artist, the man of superior imaginative and mechanical power, in the great architect, the Michael Angelo, Sir Christopher Wren type, we find the passion for mathematics, science, and the passion for beauty and art molten into an indissoluble one; this one, the architect, made known to the world and kept alive to all time in his work—Angelo in St. Peter's dome, Wren in St. Paul's. To grasp the principles which underlie these and all similar works of architecture, as well as to become an understanding and intelligent devotee to the beauty which is in them and all similar works, is as essential to the public as to the actual producer, builder, designer, or architect. That the public do its share in connection with the all-useful and beautiful art of architecture, by becoming a deeply interested and truly discriminative public, is absolutely essential to a far-flung production which shall bear universally the impress of genius in that sense in which Greek and Gothic architecture bear that impress. What agencies have we which should be active in creating such a public in respect to architecture? Few, if the truth is to be told. The technical schools of architecture accomplish something in this way, but it is not properly their chief concern. Their end is attained when they make architects. Where, then, should we look for that particular activity which will make, at least lay the foundations for, a just appreciation of architecture on the part of a considerable body of our citizens? To college and university. But when we do look to them what is it that we find? Little, if the truth is again to be told. Finally, how long are we going to allow this state of affairs to go on?

The Annual Report of the American Academy in Rome

The report of the Executive Committee of the Academy reviews the question of finances and sets forth the need for further endowment of the Academy. It is pleasant to note that Mr. Morgan has generously offered to cancel the Academy's debt to him, by an amount equal to any sum which shall be paid in for endowment, and to learn of the Fellowship in Architecture endowed by Mr. William R. Mead, and the Fellowship, of which the character is left to the determination of the Academy, made possible through the contribution of Mr. A. W. Mellon. In closing its report, the Executive Committe says: "It will not be amiss to indicate ways in which Academy influence may be strengthened and brought into closer contact with American educational life. The American Institute of Architects has already manifested officially its growing appreciation of our potentiality; were its Committee on Education charged with the duty of reviewing our work and reporting thereon to the Institute, this appreciation would doubtless grow even faster. The Association of Collegiate Architectural Schools is concerning itself very seriously with educational standards and methods, in which it coöperated with the Institute; since it is from these schools that we must draw our Fellows, here is a movement closely affecting us. In those schools, not only practitioners but teachers of the art of architecture must be developed. It is conceivable that in conference with the Association representing them, plans might be worked out for including one somewhat like that between the Contributing Colleges and the School of Classical Studies, of much benefit to the Schools of Architecture, to the Academy, and hence ultimately to American Art." These suggestions would seem to disclose large opportunities, and they will doubtless receive careful consideration.

In the report of Mr. Stevens, Director of the School of Fine Arts, it is interesting to note that the campaign of the Institute toward a common-sense public building policy for the United States found an echo in the work which the School did in making a report upon the public building policy of the Italian Government. Also, we may all share Mr. Stevens' hope that the close of the war will make it possible to undertake the excavation of an ancient site, thus broadening the interest and influence of the Academy.

The report of the Director, Dr. Carter, gives one an intimate picture of the Academy in war-time, and of Rome devoid of tourists—"the City come into its own again, the 'contadini' as visitors 'seeing Rome first,' peasants from the Abruzzi and Sardinian fishermen in full costume on the Corso, the Pantheon admired by the people of Calabria, the Forum visited by peasants from Scanno." The Villa Mirafiore is now a training-school with workshops for the soldiers who have lost arms or legs. Student-travel and taking of measurements and photographs have become almost impossible under war conditions, and yet the Academy has continued its work, with even two more students than in the previous year.

"We thus step forward," says the report, "into the new year, with our budget still further cut, grimly determined to make it go, but we have a steadily growing conviction that we have reached the limit of our economies. So long as the war lasts and our work cannot be seen face to face, it may be difficult to cause others to share this conviction; and yet, somehow, we feel that things are about to change, and that our great and prosperous country will soon take a proper pride in what we are doing and what we stand for, and that we shall soon be able to carry out the dreams of our Founders, occupying all of our properties to the universal service of Art and Letters and the glory of our country in a foreign land."

Of all the agencies which are silently at work tearing down the barriers of race and country between men, surely none is more worthy of generous support than the American Academy in Rome, for it works in a language which is universal and over the manifestations and interpretations of which men are forever at peace.

The Central Committee on Preparedness*

On March 8, the President of the Institute appointed the following Central Committee on Preparedness:

Evarts Tracy, Chairman, 244 Fifth Avenue, New York City.
Aymar Embury II, Vice-Chairman, 132 Madison Avenue, New York City.
Charles H. Hammond, Steinway Hall, Chicago.
Francis B. Wheaton, 2324 Nineteenth Street, Washington, D. C.
Frank H. Holden, 485 Fifth Avenue, New York City.
Woodruff Leeming, 20 Broad Street, New York City.
Charles Butler, 16 East Twenty-third Street, New York City.
Shipley Thomas, 244 Fifth Avenue, New York City.

The membership of this Committee is not entirely confined to the Institute, as it was decided that the work which was proposed should not be limited to Institute members, but should embrace the entire profession in the United States. Most of the members are from the East and have had some military experience. It was appointed for quick action, and it was necessary to be able to hold meetings at short notice.

A questionnaire was prepared and sent to 8,241 architects, with a view to finding out who were willing to serve and what were their special qualifications. At the moment, no official status in the Army can be given to this corps, but it is believed that one will yet be attained. Individual members are urged to join the branch of the service in which they will be most valuable. All Army officers who have been interviewed believe the organizing of architects will be of very great value to the country, and have heartily endorsed our action.

The first action of the Committee, after formulating and sending out the questionnaire, was to telegraph the Quartermaster General and the Department Quartermasters that the Institute would furnish, from local Chapters, architects and draughtsmen in any department, on request to the Committee. Very appreciative answers were received from all these officers. The presidents of all Chapters were notified of this action, and took immediate steps for readiness.

The first request came from the Eastern Department, to prepare maps for the mobilization in the Northeastern, Eastern, and Southeastern Departments, recently created by a division of the old Eastern Department. These maps had to be drawn to different scales and much information placed on them from an atlas. They were large maps, needed in twenty-four hours, and were made on time.

This was, of course, a small service, but if it had required ten times as much work, it would have been done promptly. Such service as this, and what may come immediately is, of course, an emergency one, but when our knowledge of the profession is classified, we will have something that the Government will need, and we will have it in such shape that there will be no lost motion in delivering it.

This enrollment of architects does not mean that a man signing the questionnaire has placed himself under any legal obligation for service. It is merely intended to have ready for the country in time of need a tabulated list of names of men in different parts of the country who are willing to serve, if necessary, and who have special abilities or qualifications for service.

EVARTS TRACY, *Chairman.*

*Announcement of the appointment of this Committee appeared in the letter from President Mauran to the President, as printed in the Journal for March.—EDITOR.

Personal Enlistments and Attachments

Up to the moment of going to press, the Journal has received word of the following:

Mr. Evarts Tracy, of the New York Chapter, is now a Major of Engineers in the Officers Reserve Corps.
Mr. Francis B. Wheaton, Washington, D. C., Chapter, Advisory Architect to the War Department, is Major and Inspector General, National Guard of the District of Columbia.
Mr. Woodruff Leeming, of the Brooklyn Chapter, is Major in the Quartermaster's Department, O. R. C.
Mr. Shipley Thomas, of New York City, has passed his examination for First Lieutenant in the O. R. C.
Mr. Aymar Embury II, of the New York Chapter, has applied for Captain of Engineers in the O. R. C.
Mr. J. Theodore Hanemann, of the Brooklyn Chapter, has received his commission as Captain in the Q. M. C.
Mr. Herbert W. Congdon, of the New York Chapter, Captain of the 23d Regiment of Brooklyn, has been placed on the Officers Reserve list for the state of New York.
Mr. William B. Claflin, architect, of New York City, is studying for the examinations for a Captain in the line.
Messrs. William Emerson, President of the New York Chapter, Mr. Edward S. Hewitt and Mr. A. D. Shepard of the same Chapter, are taking examinations for the O. R. C.
Mr. Gordon D. Orr, Meriden, Conn., enrolled in the Home Guard, is intending to transfer to the Naval Reserve.
Mr. James C. Mackenzie, Jr., New York City, Reserves of Squadron A, Cavalry.
Mr. Gilbert L. Van Auken, Albany, N. Y., subject to call for three years as reservist, U. S. N. G.
Mr. Willis A. Cooper, New Haven, Conn., 2nd Company, Governor's Foot Guard of Connecticut.
Mr. Frank J. Miller, Scranton, Pa., Captain and Adjutant, First Regiment Infantry, Pennsylvania Reserves.
Mr. Wm. F. Dominick, New York Chapter, serving with Battery F, 10th F. A. N. G. of Connecticut.
Mr. Jacob Thinnes, New York City, Business Men's Military Training Camp of Brooklyn, Depot Battalion, 14th Infantry.
Mr. John P. Benson, New York Chapter, Naval Reserve.
Mr. John Elliott Wood, Brookline, Mass., private, Troop A., Massachusetts Cavalry, N. G.
Mr. Arthur C. Jackson, New York Chapter, Depot Battalion, 7th Regiment.
Mr. Irving D. Porter, Washington, D. C., National Capital Military College, Washington, D. C.
Mr. Paul Cairnes Smith, New York City, Veterans' Association, 22nd Engineers, N. G. of New York.
Mr. Russell E. Collins, New York City, applied for commission, Aviation Section, O. R. C.
Mr. Charles K. Cummings, Boston Chapter, Ensign, U. S. N. R. F.
Mr. Arthur Cleveland Nash, New York City, Depot Troop B, Squadron A.
Mr. Alton Haight, New York City, Depot Battalion, 7th Regiment.
Mr. Edward P. Casey, New York Chapter, passed examination for Engineer, O. R. C.
Mr. George Mott Pollard, New York City, Reserve, 9th Coast Defense Command.
Mr. Morris B. Payne, New London, Conn., Major, Connecticut C. A., N. G.
Mr. Philip Sawyer Lacy, New York City, Columbia University O. R. C.
Mr. Leo F. Kunst, New York City, Captain, 7th Regiment, New York.
Mr. C. F. Eachan, Kearny, N. J., Kearny Horse Guards.
Mr. Harry M. Ahrens, Jr., New York City, Observer, 8th Coast Defense Command.
Mr. Henry A. Macomb, Philadelphia Chapter, Home Guard, Merchantville, N. J.
Mr. Lewis F. Pilcher, New York State Architect, services at the disposal of the Governor.
Mr. H. Van Buren Magonigle, New York Chapter, Reserve List, N. G. of New York.

THE CENTRAL COMMITTEE ON PREPAREDNESS

Mr. Robert D. Kohn, New York Chapter, tentatively attached to the Council of National Defense; has volunteered to organize a subcommittee on Structural Safety and one on Fire Safety, if desired.
Mr. William S. Covell, New York Chapter, Captain, 7th Regiment, New York Infantry, N. G.
Mr. Frederick Bigelow, Newark. N. J., Lieutenant, Cavalry, O. R. C.
Mr. Thomas H. Desmond, Hartford, Conn., Connecticut Home Guards, Simsbury Company.
Mr. Harold B. Senior, Bethel, Conn., Connecticut Home Guards.
Mr. L. H. Broome, Jersey City, N. J., 1st Brigade Staff, H. I., Engineer and Signal Officer, rank of Major.
Mr. Howard L. Beck, Buffalo, N. Y., awaiting orders, Lieutenant Colonel, Infantry.
Mr. Wm. Henry Gravell, Philadelphia, applied for Engineer, O. R. C.
Mr. William M. Scofield, Cleveland, O., Major, Ohio N. G. Reserve.
Mr. H. Edwards-Ficken, New York City, Squadron A, N. G. of New York.
Mr. Louis E. Marié, Philadelphia Chapter, expects assignment to active duty in 4th Naval District.
Mr. Carl R. Stephany, Rochester, N. Y. N. G. Reserves.
Mr. William R. Greeley, Boston Chapter, enlisted through M. I. T.
Mr. Norman K. Kann, Pittsburgh, Pa., with American Ambulance Field Corps, Paris, France.
Mr. H. P. Alan Montgomery, New York Chapter, 1st Lieutenant, 12th Infantry.
Mr. Thomas H. Atherton, Jr., Wilkes-Barre, Pa., 1st Lieutenant, 3rd Penna. Field Artillery.
Mr. Jerome Paul Jackson, Minnesota Chapter, has applied for Captain's Commission, O. R. C.
Mr. Harold Worth Vassar, New York City, applied for Naval Reserve Aviation Camp.
Mr. Hugo K. Graf, St. Louis, Mo., 1st Regiment of Missouri.
Mr. Thomas Farr Ellerbe, St. Paul, Minn., Minnesota Field Artillery.
Mr. Albert A. Grenville, New York City, 1st Regiment Cavalry, Troop C.
Mr. Dale Truscott, Camden, N. J., Senior Corporal, Battery B, Field Artillery, N. G. of N. J.
Mr. E. Lynn Drummond, Savannah, Ga., Corporal, 4th Co., Georgia Coast Artillery.
Mr. Frederick C. Foltz, 1st Illinois Field Artillery.
Mr. John Holabird, Chicago, Captain, 1st Cavalry, Illinois N. G.
Mr. John A. Rauch, Little Rock, Ark., Machine Gun Company No. 1, Arkansas N. G.
Mr. Roland A. Gallimore, New York, N. Y., Eighth Coast Defense Command, N. Y. N. G.
Mr Chas. F. Schweinfurth, Cleveland Chapter, Troop A, Ohio N. G.
Mr. Gerald St. Glenn, Bryn Athyn, Pa., taking examination for O. R. C.
Mr. Warren L. Rindge, Grand Rapids, Mich., 8th Division Michigan Naval Militia.
Mr. Reed M. Dunbar, Monroe, Mich., Sergeant, Co. K, 31st Michigan.
Mr James E. Gould, Dedham, Mass., Officers School, Co. L, 6th Reg. Inf. Mass. N. G.
Mr. Harold D. Davenport, Ann Arbor, Mich., Engineering Corps, University of Michigan, preparing for O. R. C.
Mr. Harold E. Ayer, Portland, Maine, Naval Coast Defense Reserve.
Mr. Wihner C. Kashner, Lafayette, Ind., 1st Lieut. Field Artillery, Ind. N. G.
Mr. John M. Paul, White Plains, N. Y., N. Y. N. G.
Mr. Edwin M. Van Voorhees, Philadelphia, Pa., 2nd Lieut, Ill. N. G.
Mr. Yale D. Hills, Minneapolis, Minn., preparing for O. R. C.
Mr. George J. Metzger, Buffalo, N. Y., Major, Engineers Corps.
Mr. Louis La Beaume, St. Louis Chapter, Base Hospital No. 21.
Mr. Andrew R. James, Cincinnati, Ohio, Commissioned Officer, Ohio N. G.
Mr. R. Warren Roberts, Chillicothe, Mo., 1st Lieut., 4th Mo. Infantry.
Mr. Leslie V. Abbott, Louisville, Ky., applied for O. R. C.

The above is by no means a complete register. The information was taken from the first five hundred answers to the circular sent out by the Central Committee. These naturally came from the near East and assured the Committee of the signer's willingness to serve in any capacity where his knowledge and experience could be used. Many architects were attached to local defense organizations; only a few signified their inability to serve, except in a minor way, by reason of age or physical disability. A fuller announcement will appear in the next Journal, by which time the replies will have been received from all sections of the country. All subscribers of the Journal are asked to send us any information relating to architects who are in any way attached to the military or naval forces of the country.

Individual Professional Service in the War

Under date of April 14, President Mauran addressed the following letter to every member of the Institute:

Having received the spontaneous patriotic offer of individual Professional service to the Government from a number of prominent members of the Institute in New York and Boston, I am making the opportunity available to our entire membership.

The offers already made are in the following language:

"Through you, as President of the American Institute of Architects, we tender the services of our office force at cost, and the services of members of our firm without charge, to the United States Government, or to the Red Cross Society, for any Architectural work, such as Hospital designing and construction which may follow the entrance of the United States into the War."

Should you desire to avail yourself of this opportunity, kindly communicate with me, at my St. Louis office.

This offer is outside of and in addition to the service of mobilization of the Institute's resources already being carried forward by the Central Committee of which Mr. Evarts Tracy is Chairman.

Promptness is the essence of the value of your offer.

JOHN LAWRENCE MAURAN, *President.*

Industrial Safety in War

At a meeting of the Committee on Labor of the Council for National Defense, held in Washington on April 16, Mr. Kohn, Chairman of the Committee on Fire-Prevention of the Institute, submitted a proposal for organizing, in conjunction with the National Safety Council and the National Fire Protection Association, a joint committee on industrial safety, to cover the field of accident-prevention, structural safety and fire-prevention. Mr. Kohn urged that the Government adopt the basic principle that no contracts for supplies or materials of any nature be let without a requirement as to the safety conditions which are to surround their production, the joint committee to prepare a basic safety code for this purpose, and, if necessary, inspection staffs to coöperate with Federal and state authorities to insure its enforcement. The Committee on Labor favored the proposal and asked for its presentation in writing for submission to the Council for National Defense the following day.

New York Chapter Preparedness Committee

The New York Chapter has appointed a Preparedness Committee as follows: Evarts Tracy, E. P. Casey, Aymar Embury II, Stowe Phelps, Charles Butler, and Burt L. Fenner. The Committee will learn, by direct inquiry, whether architects as such should not be useful in the preparation of typical or standard plans and specifications for the various buildings required to house or care for the Regular Army units, studying the needs of such buildings and bringing them thoroughly up-to-date in connection with information gathered from experience gained abroad.

Book Reviews

Six Lectures on Architecture.

By Ralph Adams Cram, Thomas Hastings, and Claude Bragdon; the Scammon Lectures for 1915. Published for the Art Institute of Chicago by the University of Chicago Press. 172 pages. $2 net.

The Scammon Foundation of the Art Institute of Chicago provides a fund for lectures "upon the history, theory, and practice of the fine arts by persons of distinction or authority on the subject on which they lecture, such lectures to be primarily for the benefit of the students of the Art Institute. . . . This particular volume gives the lectures of 1915.

In the two lectures under the general title "The Promise and Fulfilment of Gothic Architecture," Mr. Cram reviews the history of Gothic art in a manner wholly admirable and delightful. Despite their enforced brevity, the lectures are filled with the kind of charm which would fire the imagination of a student and interest him to dig further for himself, and that surely is the test of any lecture. It is only a pity that Mr. Cram should have seen fit toward the end to add his own reactionary views as to the future of art. When he does not pretend to prophesy but gives the result of his studies and his insight into medieval art, he is most interesting.

In the two lectures on "Principles of Architectural Composition" and "Modern Architecture," Mr. Hastings rambles along most amiably, with a wealth of wise old architectural "saws," such as are only known to the experienced and well-trained architect. To be sure, he takes his favorite fling at engineering science: there is "no necessity for calculating the thrusts of the arches and the strength of materials" in a well-studied plan of beautiful proportions "excepting for the purpose of verification," a doctrine likely to be misunderstood by the student. He protests against the imitation of the styles of other times, particularly against any attempt to copy medieval architecture. We should begin our progress where, with the Renaissance of the eighteenth century, all consistent architectural development stopped; but we are not to be misled by "the would-be style inventors, the socialists who have penetrated the world of art further than they have the world of politics." Among painters, Manet and Constable were decried in their day; we wonder, from Mr. Hastings' point of view, when socialism in art really began? It is only fair to realize, however, that in two brief discourses, full of worth-while information, Mr. Hastings could hardly be expected to define at what point in our artistic progress tradition should be transcended.

In the first of his two lectures on "Organic Architecture," Mr. Bragdon makes a real contribution in his studied and carefully drawn distinction between "arranged" and "organic" architecture; and he does indicate the path in which we must enter if we would move forward in our arts. He holds no brief for Gothic or Renaissance. Neither is suitable as "the space language" of today with our structural forms and our new life, though he considers the forms of the Renaissance "of the two on the whole more appropriate and amenable to modern needs." This whole admirable address is an earnest plea for patient study to find something organic, something true to what is best potentially in the life about us.

Mr. Bragdon's second lecture, that on "The Language of Form," starts interestingly with a review of some of the forms made familiar mainly by the traditional compositions of painters and sculptors. He relates this to architectural composition and the need for a "rhetoric of spacial expression." But a complete and adequate form language needs an appropriate system of ornament. He asks if this is to be the creation of a gifted personality, to be derived from nature, or to be developed from geometry. He rejects the first for obvious reasons; an individual cannot make a style. The second is rejected because the forms of our native flora are no longer distinctive; they may be found in any country, besides, as he remarks, "the dwellers in our cities are more familiar with corn in the can than corn on the cob." Therefore, it is geometry which offers the richest promise. Then, since "ornament depends less upon structural necessity than upon psychology," he finally reaches the conclusion that the evolution of ornament might well be out of fourth-dimensional geometry. His illustrations convince the reader only that this decision is a wise one as far as he personally is concerned, and that he has unconsciously accepted for himself that first possible source of a new ornamental language (the individual) which he had just previously rejected! To the critic the logic seems pretty thin, but the performance based thereon is delightful. Both addresses must have been not only interesting but exhilarating to the students, as they will be to any architect who reads them and who thinks at all about the future of his art.

The Art Institute of Chicago is to be congratulated on its possession of a lecture fund which makes possible the presentation of such distinctive, divergent and interesting viewpoints on architecture by three such distinguished speakers.—R. D. K.

Manchester Old Town Hall.

A drawing by Mr. Gordon Hemm and published by the author, Fern Lea, Manchester Road, Heaton Chapel, North Stockport, England. 15 by 10 inches on paper 24 by 19 inches. Price 10 shillings and 6.

Readers of the Journal will recall, in the February, 1916, number, Mr. Walter D. Blair's review of the Manchester School of Architecture Sketch Book which contained measured drawings of this charming English building, now demolished, and may be interested to know that artist's proofs of a perspective drawing of the same building are now obtainable.

Pen Drawings of Old New Orleans.

By Frank G. Churchill. Published by the Author at 1102 Hennen Building, New Orleans, La. $1.50 net.

We regret that in our announcement and review of this book last month, both the price and the author's address were stated wrongly, and we hasten to correct the errors.

The Houses of Providence. The Snow & Farnham Co., Providence. 15 cents.

It is a very human record which Mr. John Ihlder and his associates, Madge Headley and Udetta D. Brown, have set down as the result of their studies of the conditions which affect the housing of Providence. A peculiarly American record as well, and full of the historic charm and interest which we still associate with the New England of long ago. It is impossible in a brief review to give any adequate summary of the volume of information contained in this pamphlet of 100 pages. One may disagree with some of the generalizations which result, but one cannot but appreciate the painstaking care with which these studies were made and be thankful that they are set forth in a simple and straightforward manner such as is all too frequently conspicuously absent in a report of this character. Rarely have we read a document of this kind which so held our interest and won our respect. It should be read by every architect in the United States who has any interest in the problems which so vitally affect the welfare of his environment—and thus, his profession. In the *Providence Magazine* for February, the report is illustrated with many photographs and one delightful drawing by Mr. Henry S. Pitts.—B.

News Notes

The Meeting of the Executive Committee to Be Held in Atlanta, Georgia

The Executive Committee of the Board of Directors of the American Institute of Architects has accepted an invitation from the Georgia Chapter to hold its May meeting in Atlanta.

To derive the fullest benefits for architects throughout the southern states in this section of the country, and in order that the members of the profession generally in the South may become better acquainted with the officers of the Institute, the Georgia Chapter most cordially invites them to meet with it in Atlanta on Friday evening, May 18, and on Saturday, May 19.

On Friday evening, May 18, there will be an informal dinner for the Chapter and its guests at a cost of $2, and on Saturday morning the entire party will be shown in and about Atlanta.

Details concerning the exact time and place of the dinner will be announced later.

Intention to attend should be communicated to Mr. Wm. J. J. Chase, Secretary, Georgia Chapter, 1033 Candler Building, Atlanta, Ga. If so requested, Mr. Chase will make reservations at the Georgian Terrace Hotel, which is to be the headquarters for the meeting.

Second Conference of Public Art Commissions

The Department of the Art Jury of the city of Philadelphia is inviting the members of the Federal Commission of Fine Arts and of the State and Municipal Departments of Art of the United States, to a Conference to be held in Philadelphia on May 15. This will be the second conference of such bodies, the first having been held three or four years ago on the invitation of the New York Art Commission.

The morning session will be held in Mayor Smith's reception room, City Hall. Those attending the Conference will then be taken in motors to Lynnewood Hall, the residence of Mr. Joseph E. Widener, President of the Art Jury, who will entertain them at luncheon. The afternoon session will also be held in Lynnewood Hall. Those attending the Conference will be guests at dinner at the Ritz-Carlton. The first municipal departments of this kind were appointed in New York and Boston in 1898. In addition to the National Commission of Fine Arts there are now five state art commissions and about twenty-five municipal ones.

The Award of the Royal Gold Medal of the R.I.B.A.

The Royal Institute of British Architects will this year present the Royal Gold Medal to Monsieur Henri Paul Nenot, Member of the Institute of France, Honorary Corresponding Member of the Royal Institute of British Architects, Honorary Corresponding Member of the American Institute of Architects, and Inspector General of Public Buildings and National Palaces in France.

M. Nenot was awarded the Prix de Rome in 1877, and is perhaps best known as the designer of the buildings for the University of Paris, the new Sorbonne. The announcement of the nomination was made at the special meeting of the R.I.B.A. in March, and the medal will be presented in June. The award has an especial significance at this moment, inasmuch as M. Nenot fought against Germany in the war of 1870.

Institute By-laws. A Correction

The Executive Secretary desires to notify members of the Institute that in the addenda to the By-laws as printed in A. I. A. Document, Series A, No. 123, page 12, as well as in the Annuary, page 60, under the third paragraph, the reference to Article VIII, Section 3 of the Constitution, should read Article VII, Section 3.

Personal

Mr. Cass Gilbert, of New York City, announces his removal to 244 Madison Avenue, that city.

Messrs. Zantzinger, Borie & Medary, Philadelphia, announce their removal to 112 South Sixteenth Street, that city.

Mr. D. Knickerbacker Boyd, Philadelphia, announces his removal to 112 South Sixteenth Street, that city.

Mr. Thomas C. Young, of Eames & Young, St. Louis, and Mr. Alfred H. Granger, formerly of Frost and Granger, Chicago, will be associated for the practice of architecture after April 1, as Eames & Young, Wright Building, St.

Louis, and Granger & Young, 332 South Michigan Avenue Chicago.

Furness, Evans & Co., of Philadelphia, announce their removal to the Franklin Bank Building of that city.

Mr. W. Carbys Zimmerman, Chicago, announces the new firm of Zimmerman, Saxe and Zimmerman, with offices at 64 Van Buren Street. The new partners are Mr. R. W. Zimmerman and Mr. Herbert Moore Saxe.

Annual Meeting of the Fire Protection Association

The annual meeting of the National Fire Protection Association is to take place in Washington, May 8, 9, and 10. The Committee on Fire Protection of the Institute will be represented and will doubtless, as usual, take a serious part in the discussions that take place during these three days of the meeting. The Committee wishes it were possible to get every member of the Institute to attend one of these meetings of the National Fire Protection Association. It is certain any such attendance would prove of the greatest possible value to the architects themselves. The subjects on the program are frequently of the highest technical value to a professional man. Unfortunately the representation of architects is usually small and one of the favorite topics of discussion at these meetings is: "How can we make the architects of the country realize their responsibility and know their power in this matter of fire protection."

At last year's meeting in Chicago there was a most valuable and interesting discussion between Mr. Ittner of St. Louis and Mr. Snyder of New York, both members of the Institute, on safe design of school buildings. Equally interesting and important items will be found on this year's program. Every member of the Institute is welcome at the meeting in Washington on May 8, 9, and 10, as the Institute is a constituent member of the National Fire Protection Association. Detailed programs of the sessions may be had on application to Franklin H. Wentworth, Secretary, 87 Milk St., Boston.

The Omnibus Public Buildings Bill

On Tuesday, April 3, being the second day of the present session of Congress, Mr. Clark of Florida introduced another Omnibus Public Buildings Bill, apparently the exact counterpart of the Omnibus Bill which was passed by the House at the last session but which failed to be acted upon by the Senate. It scarcely seems possible that the nation will permit a bill of this kind to be enacted at such a moment in its history, but we shall report further on this particular attempt in the next Journal.

Obituary

*Levi T. Scofield

Many of us will miss the familiar figure of Captain Scofield at future Institute conventions. He was the first Cleveland architect to join the Institute, and as there was no Chapter in Cleveland at the time, he entered through the Cincinnati Chapter and remained a member of it during his life.

Mr. Scofield was born in Cleveland on November 9, 1842, and died in his seventy-fifth year. He received his early education in the public schools of Cleveland and then took up the study of architecture and engineering, working with his father, Wm. B. Scofield, who also was an architect. In 1860 he removed to Cincinnati and continued his studies there, but at the outbreak of the Civil War he returned to Cleveland and enlisted. Captain Scofield had a brilliant military record, and on account of his engineering work in the army, he was affectionately called "Old Topog" by his comrades.

There are many works in Cleveland and throughout the state of Ohio as evidence of Mr. Scofield's activity as an architect, but his Soldiers' and Sailors' Monument in the Public Square of Cleveland best illustrates his character. To this monument he devoted seven and one-half years as architect, engineer and sculptor, without compensation, and when at the end the county refused to coöperate in defraying expenses, he gave from his private fortune to do so!

Besides being a Fellow of the American Institute of Architects, Mr. Scofield was a member of the Architectural League, of the Loyal Legion, the Army and Navy Post, and the Grand Army of the Republic.

Mr. Scofield married Miss Elizabeth Clark Wright on June 26, 1867. Mrs. Scofield died a little more than three years ago. Two sons and a daughter survive him. Until his retirement from active practice, about a year and half ago, Mr. Scofield was associated with his sons in business.

*First notice appeared in March.

*Austin Allen

Mr. Allen was born in Philadelphia, August 8, 1880, and moved with his parents to Joplin, Mo., at the age of ten. There he received his common and high school education. He was graduated from the University of Pennsylvania with the class in Architecture of 1902. He was always prominent in athletics and represented the University of Pennsylvania at the English games held during the coronation of King Edward VII. It was after this that Mr. Allen spent some time in travel and study in Europe. On his return to this country, he worked in the office of the late Bruce Price, of New York, and later in the office of Hunt and Hunt, of New York. In 1905, Mr. Allen opened his office in Joplin, and about three years ago he opened another in Kansas City, dividing his time between the two cities.

Mr. Allen designed many of the most prominent buildings in Joplin, and his work was marked by a chaste dignity and scholarly restraint. Mr. Allen was a member of the Kansas City Chapter and very much interested in the work of the Institute. He was a delegate at the Minneapolis Convention of the Institute and one of the tellers. He also took part in the California excursion two years ago.

Eleven years ago, Mr. Allen married Miss Belle Taylor, of Joplin who, with three children, survives him.

Structural Service Department

In connection with professional societies and organized bodies working toward the improvement of building materials and methods, and the following Committees of the Institute:

BASIC BUILDING CODE

WILLIAM B. ITTNER, *Chairman* . . . St. Louis
W. W. TYRIE . . . . . Minneapolis
G. F. A. BRUEGGEMAN . . . . . St. Louis
OWEN BRAINARD . . . . . New York
ROBERT STEAD . . . . . Washington
E. D. LITCHFIELD . . . . . New York

FIRE-PREVENTION

ROBERT D. KOHN, *Chairman* . . . New York
W. L. PLACK . . . . . Philadelphia
G. C. NIMMONS . . . . . Chicago
JOHN R. ROCKART . . . . . New York
CHARLES H. BEBB . . . . . Seattle
LYMAN A. FORD . . . . . New York

CONTRACTS AND SPECIFICATIONS

FRANK MILES DAY, *Chairman* . . . . . Philadelphia
M. B. MEDARY, JR., *Vice-Chairman* . . . . . Philadelphia
ALLEN B. POND . . . . . Chicago
SULLIVAN W. JONES . . . . . New York
FREDERICK W. PERKINS . . . . . Chicago
JOS. EVANS SPERRY . . . . . Baltimore
J. A. F. CARDIFF . . . . . New York
GOLDWIN GOLDSMITH . . . . . Lawrence, Kan.
JULIUS FRANKE . . . . . New York

MATERIALS AND METHODS

THOMAS NOLAN, *Chairman* . . . . . Univ. of Pa.

(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee)

April, 1917, Serial No. 4

A part of the service of this Department will be to furnish inquirers with additional information, titles of books, names of authors or publishers, copies of articles, or in any way to afford help to architects wishing to ascertain the latest data available in connection with any material or method. For this service, address the Journal of the A. I. A., the Octagon, Washington, D. C. The service is free, except where clerical expense is involved, in which case a small fee will be charged to cover actual cost. The inquirer will be advised of the amount of the fee before any research work is undertaken.

The Journal of the American Institute of Architects
The Octagon
Washington, D. C.

Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

FIRE-PREVENTION AND -PROTECTION ISSUE

Section 2. General Building Construction

CONTENTS

Attention is directed also to Terra Cotta, Hollow Tile and Brick (3D), to Metal Lath, Gypsum, Asbestos and Wired Glass (3D5), and also to Cement and Concrete (1E) and Structural Steel (1F), which should be considered in connection with fire-prevention and -protection in general building construction, quite independent, of course, of all municipal ordinances and state building codes which obtain in the various parts of the country.

For information and statistics on fire-losses, hazards in general, theory and practice and other items not specifically referred to herein in connection with structural matters, the reader is referred to the *Quarterly* and other publications of the N.F.P.A. (to find which by items the N.F.P.A. "Index," mentioned under 3A3*h*, will prove invaluable), and to the publications referred to by titles under Information Obtainable (4B1), also to a phamphlet (180 pages) entitled "A Five Years' Fight against Fire Waste," by Powell Evans, copyright 1912.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated see the General Index, page 207)

4A1 Report Relating to the Work of the Underwriters' Laboratories by the Committee of the American Institute of Architects.
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4A3 National Automatic Sprinkler Association.
4B Buildings and Structures in General, New Construction Work and Safeguarding Old.
4C Walls, Chimneys and Flues; Columns, Partitions and Enclosures; Doors, Windows and Shutters; Wired Glass and other Retardents.
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4D Beams, Girders and Floors; Ceilings and Roof Construction; Roofs and Roof Coverings.
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4F Fittings, Contents and Protection Equipment.
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4A1 Report Relating to the Work of the Underwriters' Laboratories by the Committee of the American Institute of Architects

Chicago, Ill., March 7, 1917.

To the Members of the American Institute of Architects:

It has long been recognized that there is no feature in the designing and planning of any building that is more vital or important than provision against fire and for the prevention of accidents and loss of life, yet comparatively few people realize that the percentage of loss of buildings by fire in this country, in spite of our organized fire departments and our fire-prevention apparatus, is about as great as any in the world.

In 333 cities in this country, the total annual loss for 1915 is $68,200,000, or $1.94 for every individual in those cities. All that fire departments or fire-fighting apparatus can do in a fire is to try to put it out after it has started. The possibility of reducing this great loss does not depend so much on the fire departments or apparatus as it does upon the architects who plan and design the buildings. Whether the blaze once started shall spread to be uncontrollable, or whether the occupants shall have safe exit, or whether they shall be reasonably safeguarded against accidents, depends largely upon the architect.

The insurance companies can only penalize the owners for bad fire- or accident-risks by imposing high insurance rates, and city authorities can do considerable by building ordinances toward making buildings reasonably safe and proof against fire; but architects are in a position to do most when they design and create these buildings by raising the standard of their fire-resisting qualities and their safety. For the purpose, therefore, of determining and accumulating the facts about all those materials and agencies which serve to reduce fire-losses and to prevent accidents to persons, the Underwriters' Laboratories were established in 1901. They are undoubtedly today the greatest and the most scientific source we have for securing such information. They are entirely independent of any corporation, and although self-supporting, they are run without any profit, and their assistance and information can be had by architects for the asking.

Realizing, therefore, this great opportunity and the value of such information to the architectural profession, the American Institute of Architects has appointed the Committee which is the author of this communication to investigate and study the Laboratories and to bring

the architects into closer touch with their work by arranging to have such information and data of the Laboratories as would be most useful brought directly to the attention of the architects. The January issue of the Journal of the American Institute of Architects, in the new Structural Service Department, presents a brief general description of the Laboratories, the scope of their work, and some of the publications to be had, and also a reference to the future publication of information and data of the Laboratories under different headings of the Department.

The Committee on Fire-Prevention of the Institute has also been doing valuable service for years in coöperation with other organizations and in helping to promote the cause of fire-prevention. The American Institute of Architects, however, has felt that there was still a field of work led by the Underwriters' Laboratories of such vital interest to architects that a committee on that subject could find abundant opportunity for usefulness without in any way conflicting with the work of other committees or with the Structural Service Department of the Journal.

The Committee on the Laboratories has therefore undertaken to carry out a plan of witnessing those tests by the Laboratories of building materials and methods of construction most useful to architects, of selecting such information and data as is most suitable for the purpose and causing this to be sent directly to the architects, after first publishing such notices and accounts of tests, etc., in the Journal. In this way the Committee hopes to arouse a new interest among architects on the subject and a better appreciation by them of the great need in this country of better construction in buildings and, particularly, a more effective provision for fire-prevention and avoidance of human accidents.

As an illustration of part of the program adopted by the Committee, the following account is given:

The publication entitled "The Organization, Purpose and Methods of the Underwriters' Laboratories," of 1916, will first be mailed to every architect. This will give a clear understanding of the Laboratories and their work and an illustration in color of the labels used by the Laboratories. Among other uses the book will be a useful reference in recognizing labels as official on fire-doors, wire-glass windows, electrical appliances, and all of those things frequently specified to be labeled. At various times during the year it is the intention to send out several bulletins containing the results of important investigations and tests by the Laboratories. Among the important tests being made now is that of the modern steel-sash window in its various forms. Particular interest is being taken in the investigation of those windows in large units where the opening is divided by one or more mullions. Such windows in courts, alleys, etc., have only been approved heretofore when the mullions between were fireproofed in a clumsy way, taking up 6 or 8 inches of space. The new windows going through the test have mullions only 1½ to 2 inches in width. If these windows endure the test successfully—and some of them have already done so—then the insurance authorities will permit them in buildings without adding penalties on the insurance rates, and undoubtedly city building departments will permit them in buildings where now the large mullions are required which shut off so much light.

A test of building columns is shortly to be made which is quite remarkable. Elaborate preparations lasting some months have been made whereby large columns, some 14 feet high, one of cast iron fireproofed, one of steel fireproofed, and one of reinforced concrete, each carrying a load of 250 tons is to be subjected to severe heat, such as would occur in a great fire, and then subjected to a large stream of cold water under high pressure. This will undoubtedly produce some very interesting evidence bearing on the subject so frequently and earnestly debated after the Baltimore and San Francisco fires as to the relative merits of these columns. Information such as this and of other important investigations will be collected and supplied to the architects.

It is the sincere hope of the Committee that the information to be furnished will be of practical use to each architect, that he will feel at perfect liberty to make use of the Laboratories, who earnestly invite coöperation with the architects, and that there will be an improvement in the fire-resisting qualities of new buildings and also greater safeguards against accidents and injuries to persons.

Very respectfully submitted,

The Committee of the American Institute of Architects Relating to the Work of the Underwriters' Laboratories.

ELMER C. JENSEN,
H. WEBSTER TOMLINSON,
GEORGE C. NIMMONS, *Chairman.*

4A2 The Committee on Fire-Protection in the American Society of Mechanical Engineers

(Description of the Society's publications and activities will appear under later serial number.)

This Committee is composed of members who have had experience in the subject and are particularly interested in it. Its Chairman, Mr. John R. Freeman, President of the Manufacturers' Mutual Fire Insurance Company, is a recognized authority upon matters pertaining to fire-protection.

The Committee has not been especially active for the past two years, awaiting results from the investigation of column-protective coverings in progress at the Underwriters' Laboratories in Chicago, but several papers by its members have been presented and published in form for distribution. Among these are the following:

(*a*) Safeguarding Life in Theatres, John R. Freeman. This is an exhaustive study of the hazards of theater construction and suggestions for remedying them.

(*b*) Allowable Heights and Areas for Factory Buildings, Ira H. Woolson. A compilation and discussion of the opinions of 117 fire chiefs in the principal cities of the United States which were given in reply to a questionnaire upon the subject.

(*c*) Debarment of City Conflagrations, Albert Blauvelt. This deals with the broad problem of methods to prevent conflagration and is published by the N.F.P.A. (3A3*d*10).

(*d*) Life Hazards in Crowded Buildings Due to Inadequate Exits, H. F. J. Porter. Is a plea for the use of the horizontal fire-escape exit by one who has specialized and written frequently on this and other features of building construction with respect to safety to life.

(*e*) National Standard Hose Couplings and Hydrant Fittings for Public Fire Service, F. M. Griswold. It describes the necessity for such standardization and the great benefits to be secured by same. (See 3A3*d*27.)

Membership of the Committee on Fire-Protection, A.S.M.E.:

JOHN R. FREEMAN, *Chairman*
EDWARD V. FRENCH
ALBERT BLAUVELT
F. M. GRISWOLD
H. F. J. PORTER
T. W. RANSOM
IRA H. WOOLSON

4A3 National Automatic Sprinkler Association

Secretary-Treasurer: Ira G. Hoagland, 80 Maiden Lane, New York, N. Y.

Publications:

(*a*) "Safety From Fire: The Automatic Sprinkler." December, 1914. A brochure (32 pp.) describing application of automatic sprinkler systems for protection against fire to factories, stores and offices, hotels, schools and colleges, institutions, dwellings and clubs, piers and wharves, and ships and boats.

(*b*) Reprints of matter and comments concerning automatic sprinkler protection and related subjects.

(*c*) "Automatic Sprinkler Diffuser." Published periodically for the advancement of the automatic sprinkler art as applied to the conservation of life and property from fire.

Purposes:

Advancement of the art of automatic sprinkler protection and promotion of the idea of the protection. Education of the public and its constituted authorities. Dissemination of information; a central source from which architects, engineers and contractors may obtain reliable information concerning the application of automatic sprinkler systems to the protection of property from fire.

Development of opportunities for increased application of sprinkler protection. Elevation of trade and technical practices and solution of economic problems in the automatic sprinkler industry. Opposition of conditions restricting development of the art of automatic sprinkler protection.

Buildings and Structures in General

4B New Construction Work and Safeguarding Old

(See all subdivisions for separate features of construction and for devices.)
(See also "Reports on Buildings under Fire," 3E1, "Cement and Concrete," 1E6, and "Terra-Cotta, Hollow Tile and Brick," 3D.)

4B1 *Information Obtainable*

(*a*) The Bureau of Standards has issued, Jan. 31, 1917: Technologic Paper No. 70. "Durability of Stucco and Plaster Construction" (see 3E3*g*), being progress report containing results of investigations up to April, 1916.

(*b*) See among others the following publications of the N.F.P.A. listed under 3A3*a* to *h*. For additional information it is recommended that the "Index" (3A3*h*) be carefully consulted as therein all papers, addresses, discussions, reports of committees at conventions and all articles in the *Quarterly* are fully indexed and cross indexed for reference.
1. "Fire-Prevention: Its Object and Possible Results," C. Heller. (3A3*d*5.)
2. "Fire-Prevention Through Adequate Power and Common Sense," C. J. Driscoll. (3A3*d* 5*a*.)
3. "Debarment of City Conflagrations," Albert Blauvelt. (3A3*d*10.)
4. "Fire-Hazards on the Farm." (3A3*d*21.)
5. "Factories and Their Fire-Protection," Franklin H. Wentworth. (3A3*d*32.)
6. "Mill Construction Buildings," C. E. Paul. (3A3*d* 32*a*.)
7. See, "Planning of School Buildings for Safety," illustrated address by Wm. B. Ittner. "Proceedings" N.F.P.A., 1916.
8. See, "Summer Hotels, Hazards and Protection," G. Dana. N.F.P.A. *Quarterly*, Vol. 3, No. 2.
9. See, "Warehouses, Construction and Protection," C. H. Patton. N.F.P.A. "Proceedings," Vol. 14, p. 125.
10. For "Theatres, Construction and Equipment." See several references in N.F.P.A. "Index" (3A3*h*).

(*c*) See Committee on Fire-Protection, American Society of Mechanical Engineers (4A2).
1. "Safeguarding Life in Theatres" (*a*).
2. "Allowable Heights and Areas for Factory Buildings" (*b*).

(*d*) See Crosby-Fiske-Forster Hand Book of Fire-Protection. (Sixth edition now in preparation.)
1. "Fireproof Construction."
2. "Slow-Burning Construction: Recommendations for Mill Construction."
3. "Improvements for Existing Buildings."

(*e*) See "Fire-Prevention and Fire-Protection," Joseph Kendall Freitag.
1. Slow-Burning or Mill Construction, Chapter IV.
2. The Materials of Fire-Resisting Construction, Chapter VII.
3. Permanency and Corrosion, Chapter VIII.
4. Planning and General Design, Chapter IX.
5. Efficiency versus Faulty Construction, Chapter X.
6. Theatres, Chapter XXII.
7. Schools, Chapter XXIII
8. Residences, Chapter XXIV.
9. Factories, Chapter XXV.
10. Garages, Chapter XXVI.
11. Safes, Vaults, Metal Furniture, etc., Chapter XXVII.

(*f*) See, also, "The Fireproofing of Steel Buildings," J. K. Freitag.

(*g*) See "Kidder's Pocket Book," 1916.
1. "Wooden Mill and Warehouse Construction," A. P. Stradling, Supt. of Surveys, Philadelphia Fire Underwriters' Association, Chapter XXII.
2. "Fireproofing of Buildings," Rudolph P. Miller, New York, Chapter XXIII.
3. "Reinforced Concrete Construction," Rudolph P. Miller, Chapter XXIV.
4. "Reinforced Concrete Factory and Mill Construction," Emile G. Perot, Chapter XXV.

(*h*) See "Trautwine's Civil Engineers' Pocket Book" for general notes and details of construction and for "Price List and Business Directory."

(*j*) For all forms of concrete construction see "Concrete," Trautwine. 1916. Reprinted from "Trautwine's Civil Engineers' Pocket-Book."

(*k*) See "Building Construction and Superintendence," F. E. Kidder, Part 1, Masons' Work.
1. "Fireproofing of Buildings," Thomas Nolan, Chapter IX.
2. "Concrete and Reinforced Concrete Construction," Thomas Nolan, Chapter X.
3. "Form of Specifications (for all parts of a building)," Chapter XIII.

(*l*) "Plain and Reinforced Concrete," F. E. Turneaure. Being Section 5 in "American Civil Engineers' Pocket-Book," M. Merriman.

(*m*) See "Mechanical Engineers' Hand Book, 1916," Lionel S. Marks.
1. "Building Construction," Lionel S. Marks, pp. 1264–1304.
2. "Reinforced-Concrete Construction," Sanford E. Thompson, pp. 1305–1316.
3. "Industrial Buildings," Charles Day, pp. 1317–1333.

(*n*) "Reinforced-Concrete Construction," Geo. A. Hool, Vols. 1 and 2.

(*o*) "Concrete, Plain and Reinforced," Taylor and Thompson. Revision just out.

(*p*) For notes and tables on walls, floors, columns, and other data, see "Mechanical Engineers' Pocket-Book," William Kent. Pages 1385–1394, "Construction of Buildings."

(*q*) See Building Trades Hand Book.
1. Fireproofing.
2. Metal Furring and Lathing.

(*r*) See, "The Architect and Fire-Protection," address by I. K. Pond. N.F.P.A. "Proceedings," Vol. 14, p. 117.

(*s*) See, "The Architect and the Fire Waste," C. M. Goddard. N. F. P. A. *Quarterly*, Vol. 5, No. 4.

(*t*) Read "The Status of Schoolhouse Construction in the United States," address by Frank Irving Cooper. N.F.P.A. "Proceedings," Vol. 19, p. 102; also an address by him before the fifth congress of the American School Hygiene Association entitled "Schoolhouses and the Law." Contains statistics on various requirements for construction and fire-protection.

(*u*) See "Fireproof Building, Its Advantages and Its Weaknesses," H. W. Forster. N.F.P.A. *Quarterly*, Vol. 7, No. 4.

(*v*) See "Fireproof Construction, What It Is and What It Ought to Be," E. T. Cairns. N.F.P.A. *Quarterly*, Vol. 7, No. 1.

(*w*) "Fire-Resistive versus Fireproof," N.F.P.A. "Proceedings," Vol. 8, p. 235, and *Quarterly*, Vol. 3, No. 4.

(*x*) For "Fire-Retardent Materials," see N.F.P.A. "Index," 3A3*h*.

(*y*) "Requirements for Standard Mill Constructed Building," see N.F.P.A. "Proceedings," Vol. 12, p. 103, and Vol. 21, 1917.

(*z*) See "Concrete Construction for Mill Buildings," illustrated paper read before The National Association of Cotton Manufacturers, April, 1915, by Leonard C. Wason.

(*aa*) See "Proceedings" of the A.S.T.M., Vol. XVI, Part 1 (1A4*a*).
1. Report of Committee D7 on Timber.
2. Report of Committee C11 on Gypsum and Gypsum Products.

(*bb*) For further references to Gypsum in Building Construction, see:
1. Reports by Underwriters' Laboratories on "Calcination Test on Gypsum Blocks," "Gypsum Block for Fireproof Partitions;" also, "Inspected Mechanical Appliances," 3A6*b*.
2. See, also, Bureau of Standards, Pittsburgh, Tests on Gypsum Fireproof Partitions.
3. See, also, Report on Strength and Flexure Tests on Structolite made at Columbia University.
4. See References under 4B2*g* and 4D1*h* 1 and 2.
5. For descriptive list of Products of the United States Gypsum Co. and Specifications for "Pyrobar" Gypsum Partition Tile, see Industrial Section, p. XIII.

(*cc*) See the following publications of the Portland Cement Association (1E2).
1. "Factories and Warehouses of Concrete" (1E5*n*).
2. "The Concrete House and its Construction" (1E5*o*). Price $1, postpaid.
3. "Concrete Houses and Why to Build Them."
4. "Fundamentals of Reinforced Concrete Design."
5. "Recommended Specifications for Reinforced Concrete Design."
6. "Concrete Schoolhouses."
7. "Small Concrete Garages."

(*dd*) See "Fire-Prevention," Joseph McKeon, 1912.

(*ee*) See the writings variously published of Ex-Chief William Croker and of Charles T. Main on fire-prevention and -protection in relation to building construction.

(*ff*) This list would not be complete without making reference to the writings and publications of that pioneer spirit, Edward Atkinson, valuable for their significance in the development of sounder building construction.

(*gg*) See "Official Record" of the First American National Fire-Prevention Convention, Philadelphia, 1913, containing papers and discussions, among others on Building Construction, Building Codes, Protection Equipment and Insurance.

The grading of lumber, preservation of wood and all other matters in connection with the use of wood in construction will be treated in later serial number.

For information on engineering services in connection with reinforced concrete structures, see the Industrial Section, page xxxvii, Corrugated Bar Co.

For general information on the use of cement in fire-resistive construction see Industrial Section, Alpha Portland Cement Co., page xviii.

(*ll*) For information and suggestions in connection with Industrial Buildings see the publication of the Atlas Portland Cement Co. (1916) described in the Industrial Section on page L.

4B2 *Practice Recommended and Suggested by:*

(*a*) U. S. Bureau of Mines: 1. Technical Paper No. 18 (2A3*c*), "Magazines and Thaw Houses for Explosives." 34 pp. text, data and diagrams.

(*b*) National Board of Fire Underwriters:
See all four of the "Suggested Codes" listed under 3A4*d*.
1. "Building Code" 3A4*d*1 (see description by Mr. Woolson under 3A4), will be found to offer invaluable suggestions and assistance on all features of construction both generally and specifically. In addition to buildings in general and all parts of their construction, the following are separately treated:
(*a*) Construction and Equipment of Theatres, illustrated, Part XXXI.
(*b*) Construction of Moving Picture Theatres Having Capacity of Three Hundred or Less. Part XXXII.
(*c*) Assembly Halls: Requirements for Public Safety. Part XXXIII.
(*d*) Tenement-House Law. Part XXXVIII.
2. "Dwelling Houses" 3A4*d*3 (see description by Mr. Woolson under 3A4), contains concise and explicit recommendations on all forms of residence construction, including:
(*a*) General Discussion of Defective Construction and Its Relation to Their Fire-Hazard.
(*b*) Quality of Materials Suitable for Construction Work.
(*c*) Major Structural Requirements to Protect Life and Prevent Spread of Fire.
(*d*) Fire-Stopping.
(*e*) Concrete Construction.
(*f*) General Precautions for Fire-Protection.
3. To Regulate the Installation, Operation and Maintenance of Motion Picture Machines and the Construction and Arrangement of Picture Booths and Audience Rooms (3A4*c*1).
4. To Regulate the Construction and Equipment of Theatres (3A4*c*6).
5. To Govern the Construction and Operation of Laundries (3A4*c*5).

(*c*) National Fire Protection Association:
1. Field Practice. Inspection Manual. See description 3A3*d*1.
2. Office Building, Grade A—Specifications for Construction of (3A3*d*31*a*).
3. Structural Defects—Suggestions for Their Elimination and Protection. (Particularly with reference to safeguarding existing features.) (3A3*d*31*b*.)
4. Uses of Wood in Building Construction. Committee Report. Data of tests on inflammability of untreated wood and of wood treated with fire-retarding compounds. 55 pp., illustrated. (3A3*d*36.)
5. Dwelling-House Hazards—How to Prevent Fires in the Home. 4 pp., illustrated. (3A3*e*1.)
6. Schoolhouses, Fire-Protection of. 16 pp., illustrated. (3A3*e*4.)
7. Cold-Storage Warehouses—Suggestions for Their Improvement as Fire-Risks. Committee Report. (3A3*d*44.)
8. Shoe Factories. Suggestions for Their Improvement as Fire-Risks. Committee Report. (3A3*d*42.)
9. Tanneries. Suggestions for Their Improvement as Fire-Risks. Committee Report. (3A3*d*41.)
10. Fire-Prevention Work in Small Cities and Towns. Committee Report. (3A3*d*9.)
11. For Report of the Committee on Fire-Resistive Construction, see "Proceedings," 1915, p. 93, with Recommendations for Construction of Private Residences (with Full, Partial and Temporary Protection); also Recommendations for Construction of Places of Amusement (Theatres and Opera Houses, Assembly Halls, Motion Picture Halls, Pavilions, Exposition and Fair Buildings, etc.).

(*d*) Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. Dry Rot in Factory Timbers. 107 pp. with many illustrations showing also diagrams of standard slow-burning mill and factory construction and with suggested forms of specifications for special grades of long-leaf and southern pine (3A6*a*45).
2. Fires in Cotton Mills. (3A6*a*12.)

(*e*) New York Chapter A.I.A. and the New York Board of Fire Underwriters:
1. General Information Regarding Fire Insurance Requirements with Particular Reference to Fire-Prevention. Pamphlet. 1914.

(*f*) The International Association of Fire Engineers:
1. The safeguarding of Existing School Buildings against Fire. See Report of Committee to recent convention published in *School Board Journal*, Feb., 1917. 3 pp.

(*g*) The American Society for Testing Materials (1A4):
1. Tentative Standard definitions of Terms relating to the Gypsum Industry, Serial Designation (C11, 16*t*.)

(*h*) The Associated Metal Lath Manufacturers: See page xiv.
1. See Metal Lath Handbook (3C11*a*) for general details of building construction with this material (and plaster) carefully worked out and figured; includes a standard diagram for a motion picture booth.

(*j*) National Lumber Manufacturers' Association, Engineering Bureau (Serial No. 5):
1. Heavy Timber Mill Construction Buildings. This contains also a chapter describing Standard Mill Construction as mentioned under 4B3*g*1.

(*k*) See the publications of the Portland Cement Association referred to under 4B1*y* in many of which will be found descriptive and diagrammatic recommendations pertaining to the construction covered by the title.

(*m*) See "Natco Hollow Tile Fireproofing as Used in the Construction of Standard Steel Frame Fireproof Buildings."

4B3 *Standards Adopted*

(*a*) *Building Codes.* The mandatory provisions of all Codes, state or municipal, must first govern construction in each locality. That these are not always perfect is freely admitted, and it is the duty of all architects, engineers, contractors and owners to coöperate, not only in the fulfilment of all requirements, but in raising the general standard of building construction in every way possible and to take part, as has been done in many localities, in movements to improve existing codes or portions thereof. On this point the Institute, in its Document 107 (1A8*b*), says:

"An architect should be mindful of the public welfare and should participate in those movements for public betterment in which his special training and experience qualify him to act. He should not, even under his client's instructions, engage in or encourage any practices contrary to law or hostile to the public interest; for as he is not obliged to accept a given piece of work, he cannot, by urging that he has but followed his

client's instructions, escape the condemnation attaching to his acts. An architect should support all public officials who have charge of building in the rightful performance of their legal duties. He should carefully comply with all building laws and regulations, and if any such appear to him unwise or unfair, he should endeavor to have them altered."

Without referring specifically to various other localities where notable activities obtain with respect to the improvement in and standardization of Building Codes, it is suggested that, as an example of the latest printed word on this important subject, the Building Code of New York City, March 14, 1916, be read, and that its development, through changes officially adopted, be followed. Bulletins giving these changes will be sent to those who register requests for the same. State-wide codes have been adopted in whole by Wisconsin and in part by Ohio. Tentative codes have been prepared by the Commonwealths of Massachusetts, Pennsylvania, and Illinois, through commissions created for this purpose, and printed drafts of these codes have been distributed for comment and criticism preparatory to possible final adoption by the legislative bodies of each of these states.

A bill has just been prepared by the New York State Association of Architects asking for a commission to consider the "desirability and necessity" of a Building Code for that state. (See 4J2.)

See "Practice Recommended and Suggested by:" 4B2*b*, for reference to the Building Code recommended by the National Board of Fire Underwriters which is a proposed standard that has been widely distributed and copiously copied throughout the country as well as used in educational institutions and otherwise as described by Mr. Woolson under 3A4.

For progress report on work by the Bureau of Standards with respect to Building Codes, see Progress and Current Activities 4J.

For progress report and valuable suggestions, see report of Institute's Committee on Basic Building Code in "Proceedings" of 1916 Convention (1A8*l*).

(*b*) By the National Fire Protection Association:
1. Specifications for Construction of a Standard Building (3A3*d*31).

(*c*) By the National Board of Fire Underwriters (recommended by the N.F.P.A.):
1. Vaults, specifications for. Intended for banks, trust companies and others having large values to protect. Drawn primarily from the point of view of fire-protection, but many of the provisions have a bearing on protection against burglary. (3A3*a*24).
2. Hose Houses for mill yards, construction and equipment (3A3*a*13).

(*d*) By Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. See 4B2*d*1 for small illustrations and brief reference to standard, mill and factory construction.

(*e*) By Joint Committee on Concrete and Reinforced Concrete:
1. See Report of the Committee 1E7*b*.

(*f*) By American Society for Testing Materials (1A4*c*):
1. Standard Definitions of Terms Relating to Structural Timber. Serial Designation D9–15.

(*g*) By Associated Mutual Fire Insurance Companies of New England:
1. "Standard Mill Construction," shown in Report V, issued by the Insurance Engineering Experiment Station under direction of Boston Manufacturers Mutual Fire Insurance Co. Illustrated and described in Chapter VIII of 4B2*j*1. Report now obtainable from the Associated Factory Mutual Fire Insurance Companies (3A7*c*), by whom the work of the Experiment Station has been taken over.

(*h*) See all references in N.F.P.A. "Index" to "Uniform Requirements."

Vertical Structural Features

4C Walls, Chimneys and Flues; Columns, Partitions and Enclosures; Doors, Windows, and Shutters; Wired Glass and Other Retardents

[Note.—For this and all other subdivisions, see, also, the various references under "Reports on Buildings" under Fire 3E and "Buildings and Structures in General," 4B.]

4C1 *Information Obtainable*

(*a*) See particularly all references under Terra Cotta, Hollow Tile and Brick 3D, and Metal Lath, Gypsum, Asbestos and Wired Glass 3D5.

(*b*) Wall Construction, Chapter XX of "Fire Prevention and Fire Protection," J. K. Freitag, contains text matter and illustrations on:
1. Openings in walls.
2. Furring of exterior walls.
3. Mullions.
4. Party and fire walls.
5. Wall Columns.

(*c*) See, also, in Fire Prevention and Fire Protection" (Freitag):
6. Columns and Column Protections, Chapter XII.
7. Fire-Resisting Partitions, Chapter XIII.
8. Fire-Resisting Shutters, Windows and Doors, Chapter XIV.
9. Elevator Shafts and Enclosures, Pipe Shafts, Chutes, etc., Chapter XVI.

(*d*) See various sections of Crosby-Fiske-Forster Hand Book of Fire Protection. (Sixth edition now in preparation.)

(*e*) See "Building Construction and Superintendence," F. E. Kidder." Part 1, Masons' work.
1. Fireproof Construction, Columns, Partitions, Furring, Chapter IX. Also includes Plaster Block, Hollow Tile and Metal Lath.
2. Lathing and Plastering, Chapter XII.
3. Form of specifications, Chapter XIII.

(*f*) See Kidder's Pocket Book, 1916.
1. Various sections relating to Walls.
2. Column Protection, pp. 823–827.
3. Recesses for Pipes, p. 827.
This calls attention to Freitag's conclusions that pipes should never be run within fireproofing encasings of columns—which practice is now prohibited in many of our cities.
4. Partitions and Wall Coverings, pp. 878–896.
5. Metal Doors, Windows and Trim, pp. 898–908.

(*g*) See "Notes on Leakage of Air Through Windows," Bulletin, Building Data League (2A5*d*).

(*h*) For information on the subject of fire-wall divisions in buildings, read Mr. Porter's address mentioned under 4A2*d*.

(*j*) For references to "Fire Protecting Coverings for Window and Door Openings," see N.F.P.A. "Index," 3A3*h*.

(*k*) See Industrial Section for the following:
1. Detailed drawings of Lupton Steel Sash, counterbalance type, and description of Underwriters' Laboratories' test, p. x.
2. Information on Austral Balance Window, p. xix, Winslow Bros. Company.
3. Standardization as applied by the Solar Metal Products Co. in the manufacture of Hollow Steel Doors and Interior Metal Trim p. xvi.
4. Information on "Almetl" Fire doors, p. xxvii. Merchant & Evans Co. Also see notes under 4C3*b* and *e*.
5. For detailed drawings of Bronze Store Front Construction, see p. vi, Gorham Mfg. Co.
6. Descriptive matter pertaining to wired glass, p. xxii, Mississippi Wire Glass Co.
7. Illustration and description of Glass Enameled Steel Laundry Chute, p. xxxviii, The Pfaudler Co.

4C2 *Practice Recommended or Suggested by:*

[Note. See, also, Practice Recommended under Terra Cotta Hollow Tile and Brick 3D, and under Cement and Concrete 1E6.]

(*a*) National Board of Fire Underwriters:
1. "Building Code" 3A4*d*1. Read index to same and see all sections and clauses relating to walls, chimneys and flues, fire-doors, fire-windows and shutters, protection of vertical openings, mill construction, fireproof construction, and fireproofing.
2. "Dwelling Houses" 3A4*d*3. Read index to same. In addition to sections mentioned under 4B2*b*2, there are sections on walls, chimneys, flues and fireplaces.

(*b*) National Fire Protection Association:
1. Read "Index to all Subjects" (3A3*h*), which is carefully cross-indexed for reference to all subjects under this subdivision.
2. Examine contents of "Field Practice" (3A3*d*1).

(*c*) Inspection Department Associated Factory Mutual Fire Insurance Companies.
1. "Beltway Fires, Experience showing the urgent need of, and suggestions for providing non-combustible, sprinkled enclosures for main belts" (3A6*a*4).
2. "Prevention of Large Loss in a Mutual Mill," treats of partitions, beltways and protection.
3. For wood posts in "Mill-Construction" data see "Dry Rot in Factory Timbers" 3A6*a*45.

(*d*) Associated Metal Lath Manufacturers:
1. For detailed drawings of beltway enclosures and of elevator enclosures, with notes and descriptions, and for drawings of column protections from the Metal Lath Handbook, see Industrial Section, p. xiv.

(*e*) National Lumber Manufacturers Association, Engineering Department (Serial No. 5) 4B2*j*1:
1. Exterior Walls, Fire-Walls and Enclosures, Chapter II.
2. Posts, or Columns, Chapter IV. (With details of steel post caps.)
3. See Technical Letters Nos. 4 and 5, August, 1816. "Building Code Suggestions."

4C3 *Standards Adopted*

(*a*) See Specifications for Construction of a Standard Building, N.F.P.A. (3A3*d*31).
1. Walls. 2. Piers. 3. Columns. 4. Stair, Elevator and other shafts. 5. Room, Hall and Fire Exit Partitions. 6. Protection of Exterior Wall Openings. 7. Protection of Interior Wall Openings.

(*b*) Protection of Openings in Walls and Partitions, N.B.F.U. (3A4*a*18.)
The full title of this publication is "Regulations of the National Board of Fire Underwriters for the Protection of Openings in Walls and Partitions against Fire. Recommended by the National Fire Protection Association. Edition of 1915."
This deals entirely with the installation of all such protection devices and does not cover the construction. The National Board of Fire Underwriters no longer issues "Rules and Requirements for the Construction and Installation of Fire Doors and Shutters," or "Rules and Requirements for the Manufacture of Wired Glass and the Construction of Frames for Wire and Prism Glass Used as a Fire Retardent." Copies of same in existence should be destroyed.
The Underwriters' Laboratories issues special publications, one entitled "Specifications for Construction of Tin-Clad Fire-Doors and Shutters" another, "Hollow Metallic Window Frames and Sashes for Wired Glass." These are used as the rules for such construction by the National Board of Fire Underwriters and by most of the local underwriters.
Architects' specifications (unless referring to (*e*) which follows) should state that tin-clad fire-doors and shutters should be constructed in accordance with the Underwriters' Laboratories' specifications and that they should comply with the rules and requirements of (name the Local Fire Underwriters' Association) and of the City of (name the City). Tin-clad fire-doors and shutters should bear the label of Underwriters' Laboratories as evidence of such compliance or otherwise they must be accepted in writing by the local underwriters' association.
Note.—The card quoted as follows is on file with the Editor, but like so many others with which he has come in contact, it bears no date or number or means of identification, except those given by him. After describing the type of door, whether tin-clad, rolling or sliding, steel or metal rolling or sliding and the gauge, make or kind to be considered, the following will apply as:

"Specifications for Automatic Fire-Doors
to Standard of
National Board of Fire Underwriters

All openings in the fire-walls are to be equipped on both sides of each opening with automatic fire-doors, to be released by an automatic release, both doors and release to be approved by, and bear the label of, the Underwriters' Laboratories. The doors are to slide or swing as indicated on the plans, and to be installed with standard approved hardware, in every instance allowing for proper lap. Doors to be adjusted for easy operation after erection."

(*c*) See "Vaults" described under 4B3*c*1.
(*d*) "Standard for Counter-balanced Elevator Doors" Underwriters' Laboratories (3A6*h*.)
(*e*) "Specifications. Tin Clad Fire Doors and Shutters, 1914." Inspection Department, A.F.M.F.I. Co's. (3A7*a* 41.)
Note. Where "Sheet Metal" doors are used they should be installed to comply with these requirements for tin-clad doors.
(*f*) For mechanical appliances and materials inspected and labeled or approved, with names of the articles and manufacturers, see:
1. List of Inspected Mechanical Appliances (3A6*b*) and description of contents of same published in the Industrial Section, on p. xii.
2. Approved Fire-Protection Appliances, Oct. 1916 (3A7*a*3).
(*g*) "Standard Tests for Fireproof Partition Construction," A.S.T.M. (1A4*c*.) Serial Designation C. 3-09.
(*h*) Navy Department specification (3A1*a*2). "Expanded Metal," Serial Designation 47M1, Aug. 1, 1914.
(*j*) For dividing of floor areas, types of partitions, stair enclosures, and other features of industrial buildings, see "Universal Safety Standards," 1914. Compiled under the direction of and approved by the Workmen's Compensation Service Bureau, New York.

4C4 Scuppers, Inserts, and Devices

(*a*) For these in general see Field Practice, Inspection Manual N.F.P.A. (3A3*d*1.)
(*b*) For description and detail drawings of scuppers see N.F.P.A. *Quarterly* (3A3*h*), Vol. 4, No. 1. Also see *Quarterly*, Vol. 9, No. 2, and "Proceedings," Vol. 19, p. 483.
(*c*) For detail drawings of scuppers see "Watertight Floors of Mill Construction (3A6*a*26).
(*d*) Similar details shown in Chapter III of 4B2*j*1.
(*e*) Other details and description of scuppers, "Kidder's Pocket Book," p. 767.
(*f*) For information on scuppers, data as to sizes and requirements relative to floor area, see "Building Code" (3A4*d*1).
(*g*) For suggestions on wall fastening devices see paper with that title read by Carrington McFarland before Society of Constructors of Federal Buildings in Journal (2A4*a*) for March, 1916.

Horizontal and Sloping Features

4D Beams, Girders and Floors, Ceilings and Roof Construction, Roofs and Roof Coverings.

4D1 *Information Obtainable*

[Note. For this and all other sub-divisions, see the various references under Reports on Buildings under Fire, 3E and Buildings and Structures in General, 4B. See, also, references under 3D, and 3D5.]

(*a*) See, "Fire Prevention and Fire Protection," J. K. Freitag.
1. Slow-burning or Mill Construction, description and typical diagrams, Chapter V.
2. Fire-Resisting Floor Design, Beam and Girder Protections, Ceilings, Chapter XI.
3. Terra Cotta Floors, Girder-Protections, etc. Chapter XVII.
4. Concrete Floors and Reinforced Concrete, Chapter XVIII.
5. Combination Terra-Cotta and Concrete Floors, Chapter XIX.
6. Roofs, Suspended Ceilings, Furring, Chapter XXI.

(*b*) See "Fire Tests of Floors in the United States," Ira H. Woolson and Rudolph P. Miller. A completely illustrated paper giving detailed drawings and descriptions forming a record for the International Association for Testing Materials of all fire-tests obtainable upon all kinds of floors. 1912.
(*c*) See various sections of Crosby-Fiske-Forster Hand Book. (Sixth edition in preparation.)
(*d*) See Building Construction and Superintendence, F. E. Kidder.
Part 1. Masons' Work.
1. Fireproof Construction—Floors, Roofs, Ceilings, pp. 460–542.
(*e*) For much valuable information on suggested construction and floor-load developments, read 1916 progress report of Committee on Basic Building Code A.I.A. (1A8*l*).
(*f*) See "Kidder's Pocket Book, 1916."
1. Strength and Stiffness of Wooden Floors (with tables of loads for floors and rafters) pp. 717–750.

2. Fireproof Floor Construction, pp. 827–871, treats of all kinds.
3. Fireproof Roof Construction, pp. 872–878.
4. Fireproof Flooring, pp. 897–898.
5. Asbestos Roofing Shingles, Asbestos Protected Metal and Other Products, p. 819.

(*g*) The Bureau of Standards, U. S. A. issued a "Report of Loading Test of a Two Way Reinforced Floor in William A. Hill Apartment Building, Washington, D. C., June 22, 1916," which was referred to the Institute's Committee on Materials and Methods by Leon E. Dessez, then member of the Washington Chapter subcommittee. Consists of 5 pp. typewriting, 2 detailed blueprint sheets, showing combination hollow-tile and reinforced concrete construction.

(*h*) Bulletin No. 25 "Public Works of the Navy" under the cognizance of the Bureau of Yards and Docks and the Corps of Civil Engineers, U. S. Navy, Jan., 1917 (later Serial No.) gives:
1. "Report on Inspection of Installation of Gypsum Slab Construction for Roofs and Floors," Geo. A. McKay, U. S. N.
2. "Report on Loading Test of a Composition Floor Made by the U. S. Bureau of Standards, Nov. 14, 1916," E. B. Rosa. Illustrated.

(*j*) In Journal of the Society of Constructors of Federal Buildings (2A4*a*) for May, 1915, is an address by Charles F. Hennig describing "Gypsum Plasters" which includes reference to floor-domes and partition-blocks.

(*k*) See "Unit System of Wood Flooring for Fireproof Manufacturing Buildings," C. H. Patton. N.F.P.A. *Quarterly*, Vol. 8, No. 1.

(*l*) See "Waterproofing Floors," N.F.P.A. *Quarterly*, Vol. 7, No. 4.

(*m*) For general information on the subject of composition flooring, see Industrial Section, p. xi, American Flooring Co.

(*n*) See "Enclosures for Floor Openings" N.F.P.A. *Quarterly*, Vol. 8, No. 3.

(*o*) For "Classification of Roofs and Roofings,"see five references in N.F.P.A. "Index" (3A3*h*).

(*p*) See "Asbestos Roofing," N.F.P.A *Quarterly*, Vol. 6, No. 2.

(*q*) See "Roof Covering Tests" N.F.P.A. *Quarterly*, Vol. 4, No. 1, and Vol. 10, No. 4.

(*r*) For information on metal roof and other coverings, see Industrial Section, p. xix, American Sheet and Tin Plate Co., p. xlii, N. and G. Taylor Co.

4D2 *Practice Recommended or Suggested by*

(*a*) National Board of Fire Underwriters:
1. "Building Code" (3A4*d*1)
(*a*) Read index to same and see all sections and clauses relating to steel, concrete, and composite floors and roofs and to mill construction, allowable loads.
(*b*) See section on strength test for floor construction and data on slope of floors in mill construction and other floors for drainage of water.
(*c*) See section on skylight construction and all others applicable to this subdivision.
2. "Dwelling Houses" (3A4*d*3).
(*a*) Read index to same and see recommendations which are applicable to this subdivision in the various materials described.
In addition to those mentioned under 4B2*b*2 there is a section on "Floor and Roof Construction" and one on "Horizontal Cut-off for Cellars."
3. The publication 3A4*c*8 contains an "Ordinance for Fire-Resistive Roof-coverings."

(*b*) National Fire Protection Association:
Read "Index to all Subjects" (3A3*h*) which is carefully cross-indexed for reference to subjects under this subdivision and see particularly Reports of Committees to Conventions published in the Proceedings.

(*c*) Inspection Department Associated Factory, Mutual Fire Insurance Companies:
1. For wooden floor construction data and wooden floors, see "Dry Rot in Factory Timbers" (4B2*d*1).
2. For detail drawings and recommendations see "Anchorage of Roofs" (3A6*a*1).
3. "Watertight Floors of Mill Construction" (3A6*a*26) contains also diagrams of flashings against walls and around columns.

(*d*) The Associated Metal Lath Manufacturers:
1. For diagram and description of Protected Mill-Constructed Building, see p. xiv in Industrial Section.

(*e*) National Lumber Manufacturers Association Engineering Department. (Serial No. 5) 4B2*j*1:
1. Floors, Chapter III. 2. Roofs, Chapter V.

(*f*) Portland Cement Association (1E2):
1. Suggested Specification for Concrete Floors.

(*g*) For "Standard Specifications of the North Bangor Slate Company' for flat slate roofs, see Industrial Section, p. xxi.

(*h*) For slate used as Fireproof Roof Construction, see General Slate Co., p. viii.

(*j*) For illustrations and for information on the use of asbestos as a roofing material, see data of the H. W. Johns-Manville Company on p. xxiii of the Industrial Section.

(*k*) For descriptive matter pertaining to the use of Roofing in Rolls and of Slate Surfaced Asphalt Shingles, see Industrial Section p. xvii, Certain-teed Products Corporation.

(*l*) In using the Barrett Specification for roofs, and guarantee bond, it is to be noted that the latest specification should be referred to by date, as of May 1, 1916, as explained in circular letter of March 8 from this Company.

4D3 *Standards Adopted*

(Observe also the Standards under Vertical Features, 4C3.)

(*a*) See "Specifications for Construction of a Standard Building," N.F.P.A. (3A3*d*31.)
1. Floor and Roof Construction. 2. Drainage.

(*b*) See, also, "Skylights," listed 3A3*a*20.

(*c*) By the American Society for Testing Materials (1A4*c*):
"Standard Tests for Fireproof Floor Construction," Serial Designation C2-08.

(*d*) By the U. S. Navy Department. See "Specifications" (3A1*a*2):
1. For "Cement Flooring," Serial designation 59F-1, Aug. 1, 1914.
2. For "Linoleum," Serial designation 29L1*c*, Sept. 1, 1916.
3. For "Copper, Rolled Bars, Plates, Sheets and Shapes," Serial designation 47C2*a*, Nov. 1, 1915.
4. For "Zinc Plates, Rolled or Composition," Serial designation 47Z4, Nov. 1, 1913.
5. For "Felt, Sheathing, Tarred," Serial designation 33F1, Sept. 20, 1912.
6. For "Slate Roofing" (mentioned under 2K7*a*).
7. For "Sheet Rubber Tiling" Serial designation, 59T1*a*, July 15, 1913.
8. For "Tinned Plate" Serial designation, 47T1*a*, Jan. 2, 1915.

(*e*) By Building Data League (2A5*a*):
1. "Standard Specification" for Concrete Hardeners. Dated Feb. 1, 1917.
2. "Standard Specification" for Floors, Concrete. Dated Feb. 1, 1917.
3. "Standard Specification" for Asbestos Shingles. Dated Sept. 23, 1915.

(*f*) For mechanical appliances and materials inspected and labeled or approved, with names of the articles and manufacturers, see:
1. List of Inspected Mechanical Appliances (3A6*b*).
This includes Roof Coverings, Class A, Class B, and Class C, and some thirty-three other materials, and systems as mentioned in Industrial Section on p. xii.
2. Approved Fire Protection Appliances, Oct. 1916 (3A6*a*3)

4D4 Floor Hangers, Roof Connections and Devices

(See, also, Scuppers, Inserts and Devices 4C4.) Many of these are included in the various references given under 4D1, 2 and 3, which see.

(*a*) For reference to details of steel post-caps, see 4C2*e*.

(*b*) For stirrups and hangers, see "Kidder's Pocket Book," pp. 751–758.

(*c*) For hangers, post-caps, and other floor and roof connections, see "Kidder's Pocket Book," pp. 783–800.

(*d*) See N.F.P.A. "Index" (3A3*h*), "Devices and Materials."

(*e*) See Universal Safety Standards (Workmen's Compensation Service Bureau) for all types of devices recommended for protection of openings in floors and elsewhere and for objects located on floors or above roofs in industrial buildings.

(*f*) For illustrations and descriptions of vent and leader connections through roofs, see pamphlet, but recently issued by the Barrett Mfg. Co., entitled "Holt Roof Vent and Leader Connections." Especially interesting as evidence of a manufacturing concern's desire to perfect accessorial details in the installation of their own specialized product.

4D5 Tanks and Reservoirs

As architects have frequent occasion to specify tanks of steel and wood within, and in connection with buildings for many purposes other than fire-prevention, the standards are here enumerated which may well be referred to in place of independently specifying the tanks.

1. The "Regulations of the National Board of Fire Underwriters for the Installation of Gravity and Pressure Tanks, Concrete Reservoirs and Valve Pits" (3A3*a*23) contain diagrams and standard specifications for wood tanks, frostproof boxing of pipes, steel tanks and supports, reservoirs, tables of capacities, and, throughout constitute valuable and trouble-saving standards to follow.
2. The same applies to the standard specifications of the Inspection Department Associated Factory Mutual Fire Insurance Companies. "Gravity Tanks and Towers" (3A6*a*14).
3. See, also, "Elevated Tanks, Their Improved Design and Construction," N.F.P.A. (3A3*d*28.)
4. See, also, "Field Practice" (3A3*d*1) for installation suggestions.
5. See, also, "Building Code," N.B.F.U. (3A4*d*1.) Pp. 105, 195.

4E Exits—Stairways and Fire-Escapes; Safety to Life; Slipping Hazards

4E1 *Information Obtainable*

(*a*) For valuable statistics on the movement of crowds of people on stairways and ramps, and for calculations used in proportioning areas and exits in connection with the planning of the Hudson Terminal Buildings, see paper "A Terminal Station," by J. V. Davies and J. H. Wells, read at Convention of the American Institute of Architects, 1909, and published, with other papers, in separate form, from the Proceedings of that year under the title "The Relations of Railways to City Development."

(*b*) For "Entrance and Exit Calculations" see Proceedings N.F.P.A., Vol. 15, p. 257.

(*c*) See "Life Hazards in Crowded Buildings Due to Inadequate Exits," H. F. J. Porter. Described under 4A2*d*.

(*d*) See "Planning School Buildings for Safety," C. B. J. Snyder. Address before N.F.P.A., 1916. Proceedings, Vol. 20, p. 95.

(*e*) See "Fire Danger in Schoolhouses," with illustrations and descriptions of stairs, and exits, furnished through Russell Sage Foundation, Safety Engineering, Vonnegut Hardware Co., and C. B. J. Snyder, by Miss May Ayres and F. I. Cooper. Reprinted from *American School Board Journal*.

(*f*) See description of "Philadelphia Fire Escape Tower," N.F.P.A. *Quarterly*, Vol. 4, No. 4.

(*g*) For "Fire Escapes," see N.F.P.A." "Index" (3A3*h*).

(*h*) See "Kidder's Pocket Book," 1916. Doors and Stairways, with Table of Treads and Risers," pp. 1565–1568.

(*j*) See Ditto "Tower for Stairways, Elevators, etc.," p. 768.

(*k*) See "Fire Prevention and Fire Protection," J. K. Freitag.
1. Stairways and Fire-escapes, Chapter XV.
2. Fire Drills, Chapter XXXVII.

(*l*) See Crosby-Fiske-Forster Hand Book of Fire-Protection (sixth edition in preparation), many sections of which are devoted to these subjects specifically.

(*m*) See "Planning the Schoolhouse against the Fire-Hazard," reprinted from *Better Schools Magazine*, Dec., 1915, F. I. Cooper and H. F. J. Porter, 8-page pamphlet with suggestions for state regulation.

(*n*) See "Mechanical Engineers Hand Book, 1916," Lionel S. Marks; "Prevention of Accidents," D. S. Beyer, pp. 1382–1389.

(*o*) For papers, discussions and resolutions on "Fire Escapes," "Life Hazards," "Standards," and other subjects bearing on this subdivision (and others), see "Official Record of the First American National Fire-Prevention Convention." Philadelphia, Oct. 13–18, 1913. 541 pp.

(*p*) For information on Von Duprin Self-Releasing Fire Exit Latches, see Industrial Section, p. xx.

4E2 *Practice Recommended and Suggested by:*

(*a*) National Fire Protection Association:

1. Attention naturally centers upon the important work of the Committee on Safety to Life. The reports of this Committee and discussions printed in the 1914, 1915, and 1916 Proceedings should be carefully read by everyone planning urban or other buildings in which people congregate.

This Committee was created in June, 1913, and empowered to consider advisable modifications of the Association's standards in order to provide for safety to life, additional standards on safety to life with particular reference to exit facilities and housekeeping methods, and to consider coöperation, respecting accidents through fire, with existing bodies organized to study industrial or other accident prevention.

The personnel of the Committee makes it representative of these coöperative interests, including the National Safety Council, which will be mentioned in another serial number, and the Workmen's Compensation Service Bureau, reference to which is made herein.

Perusal of the reports will disclose recommendations, calculations, statistics and other data of great value and helpfulness in the planning of all types of buildings. These include:

(*a*) Escapes, stairs, balconies, chutes, and poles.
(*b*) Location, access, material, and strength.
(*c*) Number of occupants based on exit capacity.
(*d*) Stair capacity, with calculations and tables.
(*e*) Exits based on area.
(*f*) Horizontal openings; vertical openings.
(*g*) Report on outside stairs: 8 pages of descriptions and with recommendations concerning various types, heights of buildings with specifications and illustrations; 9 pages of discussion.
[NOTE.—This report is published separately and listed 3H3*d*15.]
(*h*) Sprinklers as life-savers.
(*j*) Stair requirements for buildings.
(*k*) Exit capacity schedule (Massachusetts Rating and Inspection Bureau).
(*l*) Proposed capacity in number of persons per unit of stair-width.
(*m*) Classification of occupancies.

2. See also "Exit Drills for Factories, Schools, Department Stores and Theatres" (3H3*d*16).
3. Also "Fire Protection in Schools" in which are illustrations of smokeproof school stairway with wired glass in metal frames, plans, diagrams and rules of the New York Board of Education for safeguarding lives of school-children (3A3*e*4).

(*b*) National Board of Fire Underwriters:

1. "Building Code" (3A4*d*1). Read index to same for all sections applicable.
2. "Dwelling Houses" (3A4*d*3). See all sections applicable including "Necessity for Secondary Exits" and "Structural Requirements for Protecting Stairways and Shafts."

(*c*) Abrasive Metals Co.:

In connection with the slipping hazard. For data on Ferulin Anti-slip treads with sectional drawings and "model specifications" see Industrial Section, p. ix.

4E3 *Standards Adopted*

(*a*) See Building Code, New York City, referred to under 4B3*a*.
(*b*) See Building Code, City of Philadelphia, with provision for the original smokeproof tower.
(*c*) See "Specifications for the Construction of a Standard Building," N.F.P.A. (3A3*d*31).
1. Stairways and Smokeproof Towers.
(*d*) See "Universal Safety Standards" (Workmen's Compensation Service Bureau, New York) for diagrams of stairways, exits, fire-escapes and runways.
(*e*) Navy Department Specification (3A1*a*2) "Safety Treads," Serial Designation 12T4*a*, March 1, 1916.

4F Fittings, Contents and Protection Equipment

4F1 *Information Obtainable*

(*a*) The U. S. Bureau of Mines, 2A3*c*, has published, 1915, Technical Paper No. 127, "Hazards in Handling Gasoline."

(*b*) See "Fire-Prevention and Fire-Protection," J. K. Freitag. Part VI.
1. Auxiliary Equipment and Safeguards, Chapter XXIX.
2. Sprinkler Systems, Chapter XXX.

3. Automatic Fire Alarms and Sprinkler Alarm and Supervisory Systems, Chapter XXXI.
4. Simple Protective Devices, Fire-Pails and Extinguishers Paints and Solutions, Chapter XXXII.
5. Watchmen, Watch-Clocks and Manuals, Chapter XXXIII.
6. Standpipes, Hose-racks and Roof-nozzles, Chapter XXXIV.
7. Inspection and maintenance of Fire-Protective Devices, Chapter XXXVI.

(*c*) The new Edition (sixth in preparation) of the Crosby-Fiske-Forster Hand Book of Fire-Protection will be found replete with data, statistics, and suggestions pertaining to these subjects.

(*d*) Interesting automatic fire-alarm systems for the detection of fire have been devised and should be given consideration in connection with the installation of protection equipment in buildings.

(*e*) For "Sprinkler System and Heating, Combined" see N.F.P.A. *Quarterly*, Vol. 6, No. 3.

(*f*) The subject of the relative corrosion of iron and steel pipe will always engage the attention of those responsible for sprinkler and other installations. This subject will be more fully treated in later serial numbers when under heating and plumbing the investigations and reports of the American Society of Heating and Ventilating Engineers and of the American Society of Mechanical Engineers and others are mentioned. Meanwhile the following will be found of interest in connection with sprinkler work:

1. "Corrosion of Automatic Sprinklers," N.F.P.A. *Quarterly*, Vol. 4, No. 2.
2. "Corrosion of Automatic Sprinklers," N.F.P.A. "Proceedings," Vol. 4 and Vol. 6.
3. "Relative Corrosion of Iron and Steel Pipe as Found in Service," Wm. H. Walker, N.F.P.A. *Quarterly*, Vol. 6, No. 3.
4. "Standardization of Pipe and Pipe Fittings," progress report of Committee, N.F.P.A. "Proceedings," Vol. 19.
5. For other information on the subject of pipe and piping, see N.F.P.A. "Index" and read Reports of Committees on Automatic Sprinklers in various "Proceedings."

(*g*) See "Mechanical Engineers Pocket Book," Lionel S. Marks·
1. "Corrosion of Pipes, Boilers and Structural Work," pp. 556–562.
2. "Fire Protection," H. O. Lacount, pp. 1390–1393.

(*h*) See "Mechanical Engineers Pocket Book," Wm. Kent, for data on all kinds of pipe.

(*j*) For information on Sprinkler Equipments in general see National Automatic Sprinkler Association, 4A3 and Industrial Section, p. xi.

(*k*) For information on cast iron pipe, see Industrial Section, p. xxxix, Cast Iron Soil Pipe Makers Association.

4F2 *Practice Recommended or Suggseted:*

(*a*) By the National Fire Protection Association:

The work of certain of the committees should be followed and the reports and discussions printed in the "Proceedings" should be read for all matters pertaining to the Fittings, Contents, and Protection Equipment of Buildings. This is particularly the case with the following committees:

1. On Safety to Life (see 4E2*a*).
2. On Field Practice (see publication "Field Practice" 3A3*d*1).
3. On Manufacturing Risks and Special Hazards.
4. On Automatic Sprinklers.

There are other committees concerned with various technical and engineering subjects, and the features of the work of all of these committees of especial significance at the time of need for reference may be ascertained through the N.F.P.A. "Index to Subjects" (3A3*h*).

5. For discussions on occupancy of buildings and recommendations for licensing, see "Proceedings," 1916, pp. 195–201.

(*b*) By the National Board of Fire Underwriters:
1. See "Building Code" 3A4*d*1, and read classified Index.
2. Read "Dwelling Houses" 3A4*d*3 and its Index.

(*c*) By the American Society for Testing Materials 1A4*a*:
1. Tentative specifications for 2½-, 3- and 3½-inch double-jacketed cotton rubber-lined fire hose for public fire department use.
2. Tentative tests for cotton fabrics for use in hose, belting and similar articles.

(*d*) By the Workmen's Compensation Service Bureau:
1. See "Universal Safety Standards." A reference book of Rules, Drawings, Tables, Formulæ, Data and Suggestions with particular reference to Occupancy, Fittings and Protection Equipment in Industrial Buildings.

(*e*) For detailed drawings of metal wainscoting and shelving prepared by Dahlstrom Metallic Door Company, see Industrial Section, p. xv.

4F3 *Standards Adopted:*

(*a*) By the U. S. Navy Department:
The Navy Department issues specifications in large number for many kinds of materials, installations, extinguishers and other apparatus and devices. These include specifications for iron, steel and wood and their protection, for mechanical systems and appurtenances and for metal furniture and lockers—all of which are of interest and value in connection with fire-prevention, and -protection in buildings and their equipment. Read the "Index to Specifications" (3A1*a*1), for titles and Navy Department serial numbers.

(*b*) By the National Fire Protection Association:
See Specifications for the Construction of a Standard Building (3A3*d*31).
1. Protection of Exterior Wall Openings.
2. Protection of Interior Wall Openings.
3. Service Equipment.

(*c*) By the National Board of Fire Underwriters, which have been adopted by and are also distributed by the National Fire Protection Association:
1. See "Vaults" referred to under 4B3*b*1.
2. "Sprinkler Equipments—Automatic and Open Systems" (3A3*a*21).
3. "Fire Pumps (Steam)" (3A3*a*7).
4. "Fire Pumps, Rotary and Centrifugal, and Electrical Driving of Fire Pumps" (3A3*a*8).
5. "Steam Pump Governors and Auxiliary Pumps" (3A3*a*22).
6. "Signaling Systems Used for the Transmission of Signals Affecting the Fire Hazard" (3A3*a*19).
7. "Tanks (Gravity and Pressure), Concrete Reservoirs and Valve Pits" (3A3*a*23).

(See other publications on specialized subjects in lists of publications.)

(*d*) By Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. "Rules for Installing Sprinkler Equipments," 1911 (3A7*a*16).

The following is taken from "Approved Fire-Protec-Appliances" (3A7*a*3), Oct., 1916, which see for all appliances or materials stipulated as approved:

"Before a sprinkler equipment, either wet or dry pipe, is put in, or before a present sprinkler equipment is remodeled, complete working plans of the piping should be sent to the insurance companies.

"The plans will be cherfully examined, criticized, or approved free of charge. This avoids subsequent expensive changes and secures the benefit of latest experience. Only the plans of the successful bidder should be sent for approval."

2. "Specifications for Rotary and Centrifugal Fire Pumps," 1912 (3A7*a*20).
3. "Specifications for Underwriter Steam Fire Pumps," 1911 (3A7*a*24).
4. "Rules for Dry Pipe Systems of Automatic Sprinklers," 1912 (3A7*a*8).
5. "Specifications for Fire Hose, Play-Pipes and Hose-Houses" 1911 (3A7*a*10). Purchasers of cotton rubber-lined and unlined linen hose are advised to insist on the guarantee given in the specifications on inside of front cover.

"For outside service the 2½-inch cotton rubber-lined hose should be used, and for inside the unlined linen, the 2¼-inch for standpipe work and the 1¼-inch for small-hose equipment."

6. "Specifications for Valves, Indicator Posts and Hydrants," 1914 (3A7*a*25).
7. "Specifications for Gravity Tanks and Towers," 1913, (3A7*a*14).

(See other publications on specialized subjects in list of publications.)

(*e*) By the American Society for Testing Materials 1A4*a*, "Standard Specifications for Welded Steel and Wrought-Iron Pipe." Serial Designation A 53–15.

(*f*) By Underwriters' Laboratories:
For mechanical appliances and materials inspected and labeled with names of the articles and manufacturers, see "List of Inspected Mechanical Appliances" (3A6*b*).

4G Lightning Protection

4G1 *Information Obtainable*

(*a*) In an address by the then Architect of Farm Structures in the Office of Public Roads and Rural Engineering, U. S. Department of Agriculture, entitled "Architectural Problems of the Farmhouse," delivered before the American Society of Agricultural Engineers, in December, 1914, it was pointed out:

That the necessity for and desirability of lightning protection is affirmed by scientists and confirmed by experience. Statistics compiled by fire marshals were quoted to show the infinitesimal proportion of loss in different states of rodded buildings compared to those without lightning protection.

That in Illinois there was no loss whatever from rodded building during the previous year and $1,104,693 for buildings not rodded.

That in the instances when an examination was made, it was found that the rods were not properly placed or that, as in one instance, they had been in service thirty years without repair.

It was also stated that farmers' mutual insurance companies, after keeping records of the losses from lightning in both rodded and unrodded buildings, were making substantial reductions in rates for rodded buildings, and that several companies were refusing to insure buildings not provided with this protection.

(*b*) In a paper by Ernst J. Berg, Professor of Electrical Engineering, University of Illinois, read before the Illinois State Electrical Association in 1912, he stated that "to people living in cities the lightning protection of buildings is of little or no interest, as the extensive network of wires, metal roofs, etc., are usually ample for protection. The man living in the country, however, is very much concerned, as experience has shown that in certain localities, at least, it is indeed tempting Providence not to have some lightning-rod scheme."

(*c*) In the Price Current-Grain Reporter, Dec. 23, 1914, it was stated that the Mutual Fire Prevention Bureau of Oxford, Mich., quotes data on 15,000 farm buildings all over the country, which have been compiled by Prof. J. Warren Smith of the U. S. Weather Bureau, Columbus, Ohio. Thirty-three per cent of 5,000 of the buildings were rodded. Of the total of 15,000 buildings, 1,089 were struck and 250 burned. Out of the 5,000 rodded buildings, 37 were damaged and 6 wholly burned. Of the 10,000 unrodded buildings, 10 per cent were struck and 2½ per cent burned. Of the 5,000 rodded buildings, ¾ of 1 per cent was damaged and ⅛ of 1 per cent burned.

The same Bureau also states: "One insurance company in Illinois had never paid a loss on a rodded building and had seven million dollars' insurance in force. The calculated efficiency of rods in Michigan is 99.9 per cent; Iowa, 98.7 per cent; Ontario, Canada, 94 per cent; and in Mississippi, 99 per cent. These facts certainly prove that lightning rods do protect when properly installed. A system of rods not properly grounded is no better than no rod at all. It is not out of place to assume that a large number of the losses on rodded buildings was due to the system being out of repair. This is something on which we have no data."

(*d*) "Protection of Buildings from Lightning," A. R. Sawyer and L. J. Smith, August, 1907. Michigan State Experiment Station, Agricultural College, Mich., Bulletin No. 249, 35 pages, illustrated.

(*e*) "Preventable Fires, Increasing Farm Hazards Due to Modern Conditions," Chas. E. Campbell, in the *Country Gentleman*, March 15, 1913, p. 431. Curtis Publishing Co., Philadelphia. Discusses particularly the lightning risks of barns and the advisability of separating the hay-barn from the general farm-barn.

(*f*) "Lightning and Lightning Conductors," J. Warren Smith, Professor of Meteorology, Columbus, Ohio. "Proceedings and Papers of the Nineteenth Annual Meeting of the National Association of Mutual Insurance Companies," Columbus, Ohio, 1914, pp. 23–42. Harry P. Cooper, Secretary, Crawfordsville, Ind. Also printed separately. Contains many statistics and also instructions for protecting buildings.

(*g*) "Lightning Loss and Damage, and Lightning Protection," Prof. W. H. Day. March, 1914. Ontario Agricultural College, Toronto, Canada, Bulletin No. 220. Lightning statistics gathered in Ontario, Iowa and Michigan.

(*h*) "Protecting Buildings against Lightning," George H. Armstrong. The functions and effectiveness of the lightning rod considered in the light of modern theory and practice. *Electrical World*, New York, August 21, 1915, pp. 402–406, illustrated by 14 figures.

(*j*) "The Use of Metal Conductors to Protect Buildings from Lightning," E. W. Kellogg, Missouri University Engineering Experiment Station, Columbia, Mo., Vol. 3, No. 1.

(*k*) "Practical Talks on Farm Engineering," handbook by R. P. Clarkson. Doubleday, Page & Co., New York. Contains short article on the use of barbed wire for lightning rods for protecting farm buildings.

4G2 *Practice Recommended or Suggested by:*

(*a*) The U. S. Bureau of Standards issued, 1915, Technologic Paper No. 56, O. S. Peters (1A2*c*), "Protection of Life and Property Against Lightning." This contains important evidence of the value of lightning-rod protection and a comprehensive discussion of the entire subject.

(*b*) The U. S. Department of Agriculture, published, 1909, Farmers' Bulletin No. 367, "Lightning and Lightning Conductors," by Alfred J. Henry, illustrated, which is now being revised and brought up to date by R. N. Covert, of the Weather Bureau, under the title "Modern Methods of Protection against Lightning."

(*c*) The National Fire Protection Association:

See references to Committee Reports in "Proceedings" N.F.P.A., Vol. 8, p. 251; Vol. 9, p. 271; Vol. 10, p. 264; Vol. 17, p. 263, and especially the very complete Report of the Committee on Signaling Systems in Vol. 20 (1916). This contains 26 pages of descriptive text and discussions, is fully illustrated with details and diagrams, and is prefaced with this explanation by the Chairman, Ralph Sweetland.

"This Association once published a pamphlet entitled 'Suggestions for Protection against Lightning,' which was the result of a considerable amount of work and investigation and study of theoretical considerations which had been found expressed in various governmental publications here and abroad. It served a useful purpose for some time, but with the development of the art and the extension of the application of lightning rods in this country following the American practice, it appeared desirable to revise this pamphlet. Through the Underwriters' Laboratories and through committees, a large amount of work was done in conference with manufacturers of lightning rods, the U. S. Bureau of Standards and other organizations, looking toward the development of a standard of practice in lightning-rod work and an investigation of public opinion in regard to the effectiveness of lightning rods in general. As a result the Signaling Committee has collected and presents in this report the essential results of those efforts. The report, however, gives a general discussion of the theory and goes into the question of the installation of lightning rods; how they should be put on buildings, how the grounds should be made, and similar installation matters.

"The subject is one on which there is a wide difference of opinion; one in which there has been a large amount of investigation, a great deal of theory and some practice. The investigations of the last two or three years have shown the development of a very excellent practice in lightning-rod work and have thoroughly established in the minds of the Committee the opinion that the rather widely prevalent and popular idea that lightning rods are out of date and worthless and unimportant is wholly incorrect, and that lightning rods are an important, valuable and essential part of fire-protection engineering work in very many locations, when properly made, installed and maintained.

"I think we may say that the recommendations as to practice now presented afford one of the first, if not the first, practical and commercially feasible presentations of how to do it. This has been developed and worked out with the very liberal and very widespread coöperation of the lightning-rod manufacturers with this Committee and with Underwriters' Laboratories.

(*d*) The National Board of Fire Underwriters issues "Suggestions for Protection against Lightning" as recommended by the National Fire Protection Association, 1916 (3A3*i*5).

(*e*) The Underwriters' Laboratories:

1. See "Standard (Tentative) for the Construction and Installation of Materials for Lightning-Rod Equipments" (3A6*k*).

2. The "List of Inspected Electrical Appliances" published semi-annually by the Underwriters' Laboratories, contains a list of manufacturers of materials for lightning-rod equipment whose standard products are regularly inspected at the factories and labeled under the Laboratories' service.

4H Fire Insurance

1. The following clauses constitute Article 21 of the Standard Documents of the American Institute of Architects (1A8*g*):

Art. 21. Fire Insurance.—The Owner shall effect and maintain fire insurance upon the entire structure on which the work of this contract is to be done and upon all materials, tools and appliances in or adjacent thereto and intended for use thereon, to at least 80 per cent of the insurable value thereof. The loss, if any, is to be made adjustable with and payable to the Owner as Trustee for whom it may concern.

All policies shall be open to inspection by the Contractor. If the Owner fails to show them on request or if he fails to effect or maintain insurance as above, the Contractor may insure his own interest and charge the cost thereof to the Owner. If the Contractor is damaged by failure of the Owner to maintain such insurance, he may recover under Art. 39.

If required in writing by any party in interest, the Owner as Trustee

shall, upon the occurrence of loss, give bond for the proper performance of his duties. He shall deposit any money received from insurance in an account separate from all his other funds, and he shall distribute it in accordance with such agreement as the parties in interest may reach, or under an award of arbitrators appointed, one by the Owner, another by joint action of the other parties in interest, all other procedure being in accordance with Art. 45. If after loss no special agreement is made, replacement of injured work shall be ordered under Art. 24.

The Trustee shall have power to adjust and settle any loss with the insurers unless one of the contractors interested shall object in writing within three working days of the occurrence of loss and thereupon arbitrators shall be chosen as above. The Trustee shall in that case make settlement with the insurers in accordance with the directions of such arbitrators, who shall also, if distribution by arbitration is required, direct such distribution.

2. . . . It is the common experience of owners of buildings which have been damaged or destroyed by fire that, in the adjustment of their insurance, they have been obliged either to forego competent expert advice or to pay the cost of such advice themselves.

Through the efforts of the Louisiana Chapter of the Institute, owners in that section of the country are now generally insisting on the insertion of the following clause in all fire-insurance policies:

ARCHITECT'S OR ENGINEER'S FEE CLAUSE.

"It is understood and agreed that this insurance also covers assured's liability for necessary fees for architects and engineers employed by them as a result of loss to the property insured, but in no case shall the loss and said fees combined exceed the amount of this policy, nor shall said fees exceed 6 per cent of the amount of the loss in case of a total loss, nor shall said fees exceed 10 per cent of the amount of the loss in case of a partial loss."

To attach to and form part of Policy No. . . . of the

. . . . . Insurance Company of . . . . . .

Date. . . . . Agent.

3. See, also, pamphlet "General Information Regarding Fire Insurance Requirements," referred to under 4B2*e*1; also distributed by N.F.P.A., see 3A3*d*14.

4. See "Prevention Measures in Buildings versus Fire Insurance," F. S. Baker. "Proceedings" N.F.P.A., Vol. 14, p. 141.

5. See "Self Inspection by the Assured," "Proceedings" N.F.P.A., Vol. 4, p. 206.

4J Progress and Current Activities

1. *The Bureau of Standards and Building Codes:*

The engineering data resulting (from the various investigations now taking place through coöperative work) must serve as the foundation upon which building codes must be constructed. Some progress has been made during the year in compiling the municipal building codes, not alone with a view to furnishing information to state and city building bureaus and to others interested along these lines, but with a view to a comparative study of existing codes to assist in planning a systematic program of investigations to definitely answer the many important questions about which there are still great differences of opinion.

Progress in summarizing the enormous amount of material contained in the many municipal building codes is necessarily slow with the present wholly inadequate force that can be assigned to this work; indeed, it is an endless job. Several capable assistants with a good engineering training and experience, and as many clerks, should be kept on this phase of the work uninterruptedly if reasonable progress is to be made. At the present time, as each city takes up the question of revision of its building code, it expends large sums of money and much time in making a very imperfect summary of a few existing codes—just sufficient to imperfectly serve its immediate needs—with the result that large sums of money have been expended in the past for such work, the results of which are available to nobody. It is evident that this work should be well done once, and thus made generally available. In addition to summarizing American building practice as exemplified in our building codes, the building practice of the most important European cities should be collected and made available to our state and municipal building bureaus when they take up the revision of their own codes.—From Report, 1916, Bureau of Standards.

(2) *The New York State Association of Architects and a State Building Code.*

In a letter to Prof. Thomas Nolan, Chairman of the Institute's Committee on Materials and Methods, Frank H. Quinby, Chairman of the Brooklyn Chapter Subcommittee (and recently elected President of the New York State Association), under date of March 30, 1917, says:

(Not previously referred to)

"The Legislation Committee of the New York State Association, A.I.A. has prepared a bill providing for a State Commission to investigate and report on the necessity or desirability of a state building code.

This measure has been approved by the four chapters in the state and the builders and fire underwriters and is now pending in the legislature.

I am enclosing copy of the bill" (which follows).

AN ACT to provide for the appointment of a commission to investigate and report on the necessity or desirability for the enactment of a state building code, and making an appropriation therefor.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. *Appointment of Commission: Term; Qualifications.* A commission to investigate and report on the desirability and necessity of the enactment of a state building code is hereby created. Such commission shall consist of seven members, to be appointed by the Governor, one of whom shall be an employing carpenter contractor, and an employing mason contractor, both of whom shall be actively engaged in building operations; two architects, one structural engineer, one expert in fire-prevention and one attorney. Each of such persons so appointed shall have been actively engaged in his respective calling or profession for at least ten years. The term of each commissioner shall be two years from the date of his appointment, unless further extended by the Legislature on the recommendation of the Governor, and each commissioner shall receive such pay in addition to his actual traveling and other expenses as is consistent and within the appropriation made by the Legislature to cover the total expense of the commission. Before making such appointments, the Governor shall invite recommendations from architects' and builders' and engineers' organizations and from the board of Fire Underwriters as to those best qualified to serve on such commission. The commissioner of public works and the chairman of the committees on buildings of the Senate and Assembly, if such committees are appointed, shall be ex-officio members of such commission. The Governor shall have the power to fill all vacancies in the commission but shall maintain each class of commissioners as herein described.

2. *Power of the Commission.* Such commission shall elect a chairman and an executive secretary. The executive secretary may not be, however, a member of such commission, and in the event that he is not a member of such commission, he shall have no vote in the deliberations of the commission. Such commission shall fix the salary of the executive secretary and may appoint, and at any time may remove, such other assistants as it shall deem necessary and fix their compensation.

3. *Duties of the Commission.* The commission shall investigate and report on the desirability or necessity of the enactment of a state building code. If it finds that such a code is desirable, the commission shall prepare and report to the Legislature a draft thereof giving the requirements essential to govern the safe construction of all buildings erected in the state, the maximum working stresses to be imposed on materials to be used and the qualities of the same, and the minimum requirements as

to safety from danger of fire or collapse in all classes of buildings, and the means whereby such code shall be enforced by existing local machinery provided or to be provided therefor. Nothing contained in such proposed code shall reduce the requirements of any existing state law with regard to protection of health or property in factories, mercantile establishments or tenement houses nor infringe the right of any municipal corporation to enact and enforce its own building or other ordinances, nor reduce the requirements of any such code, provided the requirements of such ordinances or codes are equal to or greater than those of the state code. Such reports shall be made by the commission not later than the fifteenth day of January, nineteen hundred and eighteen, unless the time therefor is extended by the Legislature on the recommendation of the Governor.

4. The sum of twenty thousand dollars ($20,000), or so much thereof as may be necessary, is hereby appropriated out of any moneys in the treasury not otherwise appropriated, to be paid by the State treasurer on the warrant of the comptroller on the audit of the chairman of the commission, ten thousand dollars of which sum shall be immediately available and the other ten thousand dollars to be available on the first day of January, nineteen hundred and eighteen.

5. This act shall take effect immediately.

4K Structural Matters in General

1. *Conventions and Meetings.*

Attention is directed to the Twenty-first Annual Convention of the National Fire Protection Association which will be held in Washington, D. C., on May 8–10, 1917. Two days' sessions will be held in the New Willard Hotel, and one day's session at the Bureau of Standards. Members of the Institute's Committee on Fire-Prevention will be delegates, and members of the Committee on Materials and Methods will attend. A cordial invitation is extended by the association to all members of the Institute to be present.

2. *Standard Specification for Magnesia Pipe Covering.*

The Editor is pleased to direct attention to every activity or advance in connection with the standardization of structural materials or processes.

The following letter to the Editor has been received from the Chairman of the Institute's Committee on Materials and Methods:

March 12, 1917.

I have before me the "Specification for '85% Magnesia' Non-Conducting Coverings for Power and Heating Systems." This specification is issued by the Magnesia Association of America and represents the best established practice based on over a quarter of a century of experience.

The engineering experience upon which this Specification is formulated covers all users of "85% Magnesia" insulating, including the U. S. Navy (where "85% Magnesia" has long been the regulation covering), powerplants, factories, and heating systems for buildings of all sizes.

I would suggest, as Chairman of the Institute Committee on Materials and Methods, that the attention of the profession be called to this standard specification which may be obtained in two forms, one a very brief form and another full and detailed and ready for incorporation in any specification. It is so written that any part not applicable to any particular work may be omitted.

This standard specification is so well arranged and of such assistance to architects that I think the Association referred to is to be complimented upon its production and publication. (Signed) THOMAS NOLAN

Chairman Committee on Materials and Methods.

[NOTE.—For further information concerning this specification and the association which promulgated it, see Industrial Section, p. VII.]

3. *Gypsum Report Issued.*

The Geological Survey, U. S. Department of the Interior, now has available for distribution its annual statement on Gypsum for 1915, which states the quantity of crude gypsum mined in the United States during the year to be 2,447,611 short tons.

4. *The Publicity Bureau* of the *Associated Metal Lath Manufacturers*, in a recent announcement regarding the removal of their offices from Chicago to Cleveland, and the appointment of Mr. Zenas W. Carter as Commissioner, states that among the plans of the Metal Lath Association is one for a coöperative national campaign of publicity which will be developed by the Council of Advertising Managers of the member companies.

Their plans cover a series of extensive and exhaustive tests of the fire-resistance properties of metal lath, its use in fire-retarding construction, the exploitation to architects and the public of the saving in space which can be effected through the use of this material, its vermin- and rodent-proofness, investigation and assistance in the revision of building codes of cities so that metal lath may receive its proper recognition by city officials and engineers.

Mr. Carter was the first General Secretary of the Electric Development Association when it was incorporated in New England. The Julian Armstrong Bureau of Related Industries will continue its special work for the Associated Metal Lath Manufacturers.

Gypsum.

A committee of the American Society for Testing Materials is endeavoring to write specifications for gypsum and gypsum products, which are largely used as wall plasters and fire-proof partition tile. Among other things, the committee desires to develop standard methods for testing the material. This bureau has coöperated by carrying out some of the necessary laboratory experiments to determine whether any one of the methods now in use is better than any other and to devise new methods when needed. The tsets at present being investigated are chemical analysis, microscopic examination, normal consistency, water-carrying capacity, time of set, tensile strength, and sand-carrying capacity. (From Report of the Bureau of Standards, 1916.)

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